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This User's Manual supports the automation of the US Army Logistic Support Analysis (LSA) Tasks and Subtasks. It is the complete users documentation package and provides guidance for using the Automated Logistic Support Analysis Tools (ALSAT). ALSAT provides a computer assisted guide to logisticians in the performance of LSA Tasks and Subtasks as defined in MIL-STD-1388-1a. It defines, organizes, tracks, models and reports on procedures that are used to develop supportability concepts. This particular module (one of four) fulfills the requirements of LSA Task 101, "Early LSA Strategy". To effectively utilize ALSAT this manual should be used conjunctively with the Executive Module User's Manual.

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AUTOMATED LOGISTICS SUPPORT ANALYSIS TOOL
Version 1.0

USER'S MANUAL

Early LSA Strategy
(LSA Task 101)

APJ 966-601

APJ

MILITARY & SCIENTIFIC RESEARCH

AMERICAN POWER JET CO. RIDGEFIELD N.J.

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AUTOMATED LOGISTICS SUPPORT ANALYSIS TOOL
Version 1.0

USER'S MANUAL

Early LSA Strategy
(LSA Task 101)

under

CONTRACT DAAA21-86-D-0025

for

HQ US AMCCOM
INTEGRATED LOGISTIC SUPPORT OFFICE
AMSMC-LSP
ROCK ISLAND, IL

by

AMERICAN POWER JET COMPANY

RIDGEFIELD, NJ ARLINGTON, VA

WILLIAMSBURG, VA ST. LOUIS, MO

May 1991

PLEASE READ THIS

The Automated Logistics Support Analysis Tool (ALSAT) software consists of an Executive Module and a set of LSA Task/Subtask Modules.

To operate ALSAT, both the Executive Module and the Task/Subtask Modules you wish to use must be installed.

There is a separate User's Manual for each Task/Subtask Module. To effectively utilize ALSAT, obtain both the Executive Module User's Manual and the applicable Task/Subtask User's Manuals.

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FOREWORD

This manual supports the automation of the US Army Logistic Support Analysis (LSA) Tasks and Subtasks. It is the complete user documentation package and provides guidance for using the Automated Logistics Support Analysis Tools (ALSAT).

ALSAT provides a computer assisted guide to logisticians in the performance of Logistics Support Analysis Tasks and Subtasks, as defined in MIL-STD-1388-1A. It helps to identify the optimal solutions to operation and support requirements, addressed in the Logistics Support Analysis process, during the life cycle phases of a Weapon System/End Item.

It defines, organizes, tracks, models and reports on procedures that are used to develop the support concept. The objective of ALSAT is to reduce the time spent by logisticians on the tedious administrative efforts of organizing, collating and formatting information developed in the analysis process.

ALSAT is being developed by the American Power Jet (APJ) Company, under contract to HQs AMCCOM. A major goal of the project is to unify the military and contractor approach to the performance of LSA. This approach was validated by AMCCOM, and necessary adjustments made to attain a fully useful and user-friendly program.

Structured methodologies were used to develop the software logic in accordance with MIL-STD-1388-1A, "Logistic Support Analysis". This module fulfills the requirements of LSA Task 101, "Early LSA Strategy". The structured analysis and design for this module was presented in APJ Report 966-215. APJ's task performance has been closely coordinated with AMCCOM. Their experience has been captured in APJ's logic through continued coordination and review at the working level.

Key aspects of the LSA Strategy are prepared by making the appropriate choices from the Main Menu. The System Description and Acquisition Data inputs are completed first, followed by the Supportability Objectives. Finally, the LSA Tasks are selected and the requirements are tailored to the Weapon System/End Item Acquisition.

The Early LSA Strategy software offers a unique concept in the development of Supportability Objectives and LSA Task selection rationale. The Supportability Objectives are defined by selecting the appropriate ILS Element and within the Element, a subelement. All the supportability objectives related to the subelement can be entered and saved.

For LSA Task Selection, the software offers the analyst an option to develop several different types of rationale for selecting the task. They are design impact, cost effectiveness, and availability of data. In addition, the software provides a place to document the estimated cost to perform the task, responsible agency or functional area and a free form text field that can be used for other remarks or information (e.g., satisfying a supportability objective).

This manual and its accompanying software is to be used in conjunction with the APJ ALSAT Executive User's Manual (APJ Report 966-600). The accompanying Manual is required to attain the full functionality of the ALSAT software.

This work was performed by a task team for APJ: George Chernowitz, Scott Lerman, Siddhartha Chaudhuri, Kayin Tong, Raymond Powers and Dan Tillman. The team was ably supported in production by Denise Montanez.

The support of Messrs. Ned A. Shepherd and Ron Duclos of AMCCOM, AMSMC-LSP is gratefully acknowledged for their assistance in many regards.

The LSA software is available through HQ AMCCOM, AMSMC-LSP to Program/ILS Managers and logistic specialists responsible for doing the LSA Tasks and Subtasks.

Comments and recommendations on this version are welcome and should be addressed to:

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CHAPTER 1
GENERAL

1.1 CONTRACT REQUIREMENT

1.1.1 This software is part of a coordinated HQ, US Army Armament, Munitions, and Chemical Command (AMCCOM) and American Power Jet Company (APJ) contract effort to provide a uniform and reproducible approach to the logistic tasks addressed by MIL-STD-1388-1A, "Logistic Support Analysis", and Army Regulation 700-127, "Integrated Logistic Support".

1.2 OVERVIEW OF LSA SOFTWARE

COMPUTER ASSISTED GUIDE

1.2.1 The software provides a computer assisted guide for working level personnel in performing Logistics Support Analysis Tasks and Subtasks, as identified in MIL-STD-1388-1A. It provides assistance in identifying the optimal solution from the alternatives available to develop support concepts of Weapon Systems/End Items.

SUPPORTS ALL LIFE CYCLE PHASES

1.2.2 This procedure covers all phases of a Weapon System/Equipment life cycle. The inclusion of every Task or Subtask may not be pertinent in all cases. It is suggested that the user review the complete list of Tasks and Subtasks to determine those applicable to the life cycle phase and type of analysis being performed, and indicate it on the control menu.

RECORDING PROBLEMS

1.2.3 The software includes features that allow the user to identify any areas which may have been ignored, and/or describe problem areas which are critical. It also provides a Summary and Status screen which allows a manager to maintain an up-to-date record of the Task.

GENERAL REPORT TYPES

1.2.4 The program generates reports which broadly cover three areas: status reports, summary reports, and specific reports.

1.3 OVERVIEW OF EARLY LSA STRATEGY - LSA TASK 101

AUTOMATED TOOL

1.3.1 This software is an automated tool that will assist ILS Managers and LSA Specialists in the preparation of an Early LSA Strategy (LSA Task 101). The software is useful for managing the process, organizing/tracking the information and preparing the final report.

ORDER OF TASK PERFOR-MANCE

1.3.2 Key aspects of the LSA Strategy are prepared by making the appropriate choices from the Main Menu. The System Description and Acquisition Data inputs are completed first followed by the Supportability Objectives. Finally, the LSA Tasks are selected and the requirements are tailored to the Weapon System/End Item Acquisition.

SUPPORT-ABILITY OBJECTIVES

1.3.3 The Early LSA Strategy software offers a unique concept in the development of Supportability Objectives and LSA Task selection rationale. The Supportability Objectives are defined by selecting the appropriate ILS Element and within the Element, a subelement. All the supportability objectives related to the subelement can be entered and saved. This results in not only identifying the supportability objectives but tying them to ILS Elements, which becomes a useful tool in preparing the Statement of Work, ILS Plan, and Design Specifications.

LSA TASK SELECTION RATIONALE

1.3.4 The unique aspect of LSA Task Selection is that the software offers the analyst an option to develop several different types of rationale for selecting the task. They are design impact, cost effectiveness, and availability of data. In addition, the software provides a place to document the estimated cost to perform the task, responsible agency or functional area and a free form text field that can be used for other remarks or information (e.g., satisfying a supportability objective).

1.3.5 The decision to assign the responsibilities to implement this application rests with the individual Program, Product and Project Managers. A suggested method follows:

a. The Program, Product, or Project Manager assigns his Chief ILS Manager the responsibility of completing the ACQUISITION DATA/SYSTEM DESCRIPTION Screen, (para 3.6) and the DESCRIBE SUPPORTABILITY OBJECTIVES Screen (para 3.7).

b. The ILS Manager brings up the SUPPORTABILITY OBJECTIVES ATTRIBUTES Menu, (para 3.8) and the LSA TASK SELECTION Menu, (para 3.27). Enter a **<Y>** or **<N>** for those Attributes/LSA Tasks that will be required, or are not applicable.

TASK MANAGEMENT AND ASSIGNMENT OF RESPONS-IBILITIES

c. The ILS Manager then assigns Action Officers to the Attributes/LSA Tasks that are required along with scheduled start and finish dates.

d. The Attributes Action Officers will bring up the SUPPORTABILITY OBJECTIVES/SUB-ATTRIBUTE Menu (para 3.8.1) for their assigned Attribute. Then they will enter a **<Y>** or **<N>** on the Sub-Attributes Applicability Field for those that will be required, or are not applicable. The Attribute Action Officer then assigns Action Officers to the Sub-Attributes required along with scheduled start and finish dates.

PROGRESS REPORTS

e. Management may monitor the progress of their project at any time by utilizing the Reports Menu (para 4.2). This progress can be monitored by individual Support Attribute, Individual Task, progress on the Early Strategy Report Section I or Section II, or a full and concise LSA Task Status Report.

1.3.6 The LSA Task Description, with associated task inputs and outputs, can be found in MIL-STD-1388-1A and is included as Annex A.

1.4 REFERENCE DOCUMENTS

1.4.1 Reference Documents List

Author	Publication	Title	Classification
DOD	MIL-STD-1388-1A	Logistic Support Analysis	U
DA	AR 700-127	Integrated Logistics Support	U
MRSA	MRSA MRSAP 700-11	Cost Estimating Methodology for Logistics Support Analysis	U
APJ	APJ 966-201	Structured Analysis/ Design LSA Task 101	U
APJ	APJ 983-1	COMVAT Early Strategy Report LSA Task 101	U
APJ	APJ 966-690	Executive User's Manual	U

1.4.2 SYSTEM APPLICATION. This application is applicable to all Program, Product and Project Manager Offices within AMCCOM. It has long range considerations to Project Managers throughout the Department of the Army, other Military Services and the Department of Defense.

1.4.3 FUNCTIONS PERFORMED. This application is used to input the data required to produce portions of the Early LSA Strategy Report, LSA Task 101. Once entered, the data may be retained indefinitely for future modification and reuse.

1.4.4 SYSTEM INTERFACES. This application does not interface with other files, Mil-Std tasks or data bases except for the Executive Module. It operates totally in a stand alone mode.

1.4.5 SYSTEM OPERATIONS. The output reports can be sent to screen, printer, or file. They are generated using the data input under the ANALYSIS option of LSA Task 101.

CHAPTER 2
QUICK START

2.1 GENERAL

2.1.1 This chapter gives the **Quick Start** procedure to access the Early LSA Strategy module in the Logistic Support Analysis Software.

NOTE

The manual assumes that the software installation procedures have been completed and that the LSA software is in a subdirectory called LSA which is on the C drive. If the software resides in any other drive or subdirectory, the user will need to make the appropriate modifications to these procedures.

2.2 START UP PROCEDURE

ENTER LSA SOFTWARE

2.2.1 To enter the LSA software:

At the prompt C:> type ***CD\LSA*** and press ***<Enter>***

At the prompt C:\LSA> type ***LSA*** and press ***<Enter>***

On the welcome screen press ***<ANY KEY TO CONTINUE>***

Type in your Analyst ID press ***<Enter>***

Type in your Password

ANALYST ID

Review Analyst information screen and if correct, use the arrow keys to highlight the ACCEPT option and press ***<Enter>***.

If the Analyst information is incorrect, use arrow keys to highlight the EDIT option and press ***<Enter>***.

EQUIPMENT SELECTION

Use the arrow keys to move the highlight bar to select an EQUIPMENT FOR ANALYSIS and press ***<Enter>***

Review Equipment details and press ***<ANY KEY TO CONTINUE>***

NOTE

If Equipment details require change contact the System Manager. The changes to the Equipment details can be made in the MANAGEMENT MODULE by a user who has a Manager access level. For further details see the Executive Module Manual.

PERFORM ANALYSIS

2.2.2 To perform an analysis in the EARLY LSA STRATEGY module:

Select OPERATIONS from the Main Menu and press ***<Enter>***

Select ANALYSIS from the window and press ***<Enter>***

Use the highlight bar to select 101 from the LSA TASK LIST and press ***<Enter>***

Use the arrow keys to move the highlight bar to select PERFORM ENTIRE TASK from the LSA Task Main Menu.

2.2.3 To generate reports in the EARLY LSA STRATEGY module:

Select OPERATIONS from the Main Menu and press ***<Enter>***

Select REPORTS from the window and press ***<Enter>***

GENERATE REPORTS

Use the arrow keys to move the highlight bar to 101 on the LSA TASK LIST and press ***<Enter>***

OUTPUT DESTINATION On the Reports Menu use the arrow keys to move the highlight bar to the required report and press ***<Enter>***

TO SCREEN To view the report on the screen select SCREEN and press ***<Enter>***

TO PRINTER To print the report select PRINTER and press ***<Enter>***

TO DISK To save report to disk select DISK and press ***<Enter>***. Specify Path: Drive Name\Directory\Sub-Directory\ File Name and Extension, (e.g., ***C:\LSA\REPORTS\REP1***).

CHAPTER 3
SYSTEM INPUTS

NOTE

This application has on-line screen data validation for mandatory entries.

3.1 FUNCTION KEYS

The analyst has several options controlled by the various function keys. They are:

KEY	DESCRIPTION
<F1>	Help. Gives the analyst the option of viewing the Input Instructions or the Process Methodology Screens. Use up and down arrow to scroll through the screens. To print the screens, press the *<F6>* key.
<F2> & *<F5>*	Edit. Depending upon the screen displayed, the keys give the analyst the opportunity of entering new data or changing existing data on the screen displayed.
<F6>	Print. Use to print Input Instructions or Process Methodology screens.
<F9>	Note. See Executive User's Guide, for description.
<F10>	After entering the data, this key is used to save the information entered into the fields on a data input screen.

KEY	DESCRIPTION
<ESC>	Always returns the user to the previous screen.
<PAGE UP>	Always displays previous screen.
<PAGE DOWN>	Always displays the next screen.
<UP ARROW KEY>	Always moves the cursor up one line or data entry field.
<DOWN ARROW KEY>	Always moves the cursor down one line or one data entry field.

Table 3-1

NOTE

In addition to the above descriptions, the available function keys are displayed at the bottom of each screen.

3.2 INPUT AND HELP SCREENS

3.2.1 There are four types of screens in this system:

a. Data Input
b. Input Instructions (Help Screen)
c. Process Methodology (Procedures for completing data input screen)
d. Menu Selection Screens

DATA INPUT SCREENS

3.2.2 The data input screens are used to input the data that will be required to produce the desired output products. Online screen data validation for invalid mandatory entries will be displayed on the screen when the user wishes to store the input data.

INSTRUCTION SCREEN

3.2.3 The Input Instruction screens will describe the mandatory and logical entries for the input screen being completed. These input instructions may also be found in this chapter following the appropriate input screen.

METHOD-OLOGY SCREENS

3.2.4 The Methodology screens will describe (in general terms) the logic for completing the various screens. These screens may be changed to tailor the logic to a particular Command to further describe the methodology peculiar to that Command. These screens cannot be changed by the user. They must be changed by ADP personnel.

TAILORING HELP SCREENS

3.2.5 It is important to note that these screens, when changed, affect the entire command utilization of this system. They can be changed to reflect different methodologies for different end items/ systems within a Command. EXAMPLE: AMCCOM may wish to change these screens to more clearly provide methodology for the diversified equipment they manage, such as:

a. Ammunition
b. Small Arms
c. Artillery
d. Mortars
e. Chemicals

NOTE

Both INPUT INSTRUCTIONS and METHODOLOGY HELP Screens may be viewed on the terminal and/or printed on hardcopy.

3.3 GENERAL DESCRIPTION OF INPUT PROCESSING AND OUTPUTS

START-UP

3.3.1 After Log-on, the user (analyst) will be presented with a LOG-ON WELCOME Screen. The next screen is used to enter the ANALYST ID and ANALYST PASSWORD. This screen is followed by an analyst information screen. The user can choose to either ACCEPT or EDIT the information presented on the screen.

3.3.2 If upon review, the Analyst finds that certain information is not correct, then he may choose to EDIT the information. The information presented on the screen can be updated and saved. If no changes are required, ACCEPT is chosen and the program continues to the EQUIPMENT SELECTION Screen for analysis. This screen allows the analyst to select the equipment by highlighting the desired item and pressing the ***<Enter>*** key. Also, equipment can be added or deleted. (See the Executive Module User's Manual).

3.3.3 When this is accomplished, the DETAILED EQUIPMENT INFORMATION Screen is displayed. This screen is for viewing only and cannot be changed. (If changes are required, see APJ User's Guide Executive Manual).

OPERATIONS

3.3.4 To proceed to the next screen press any key. The LSA Main Menu Screen will appear. Of the five menu options, only the OPERATIONS feature is covered in this manual. For the other four options, see Executive Module User's Manual. Highlight the OPERATIONS feature and press ***<Enter>***. At this point, the OPERATIONS and ANALYST/REPORTS submenu is displayed. Chapter 3 addresses the operation of the ANALYSIS portion of this software module. Chapter 4 addresses REPORTS.

SELECTING THE 101 TASK

3.3.5 After ANALYSIS has been selected, the PERFORM LSA TASK/SUBTASK Screen will be displayed. For this User's Guide, Task 101 must always be selected. To select Task 101, highlight it using the arrow keys and press ***<Enter>***.

3.4 TASK 101 MAIN MENU

The Main Menu options are:

MAIN MENU

ACQUISITION DATA/SYSTEM DESCRIPTION
DESCRIBE SUPPORTABILITY OBJECTIVES
SELECT SUPPORTABILITY OBJECTIVES ATTRIBUTES
SELECT LSA TASKS

3.4.1 INPUT INSTRUCTIONS

SCHEDULED START AND FINISH DATES

Prior to making a menu selection, the user must enter a Task 101 Scheduled Start Date and Scheduled Finish Date. The date field format is DDMMYYY. These dates reflect the start and finish dates of the complete task from acquisition data/system description through discussion of all individual LSA Tasks. This is a mandatory entry. If an exact date is not known, enter an estimated date.

If these fields already contain an entry, there is no requirement to change them. Press ***<Enter>*** at each date field to leave the dates unchanged and proceed to the menu for selection of an option.

After completion of the date fields, the highlight bar will be on the ACQUISITION DATA/SYSTEM DESCRIPTION menu option. Use the up and down arrow keys to highlight the desired Main Menu option and press ***<Enter>*** to select it.

3.4.2 PROCESS METHODOLOGY

MENU OPTIONS

The menu selections must be made in the following order. The ACQUISITION DATA/SYSTEM DESCRIPTION option must be completed prior to selecting DESCRIBE SUPPORTABILITY OBJECTIVES option. The ACQUISITION DATA/SYSTEM DESCRIPTION and DESCRIBE SUPPORTABILITY OBJECTIVES options must be completed prior to selecting either the SELECT SUPPORTABILITY OBJECTIVES ATTRIBUTES or SELECT LSA TASKS options.

NOTE

An on line data validation will prevent the user from bypassing this selection process. When this occurs, strike any key and the highlight bar will return to the ACQUISITION DATA/SYSTEM DESCRIPTION MAIN MENU Screen.

3.5 ACQUISITION DATA/SYSTEM DESCRIPTION SCREENS

3.5.1 INPUT INSTRUCTIONS

REVIEWING PREVIOUSLY ENTERED DATA

After viewing Screen 1, press the ***<page down>*** key to proceed to the next screen or press ***<ESC>*** to return to the Main Menu. If the screen contains data that was previously entered on it, press the ***<F10>*** key to save the data.

Repeat the above steps to review Screen 2. Upon completion of Screen 2, press ***<Enter>***, then the ***<F10>*** key to save the data to file prior to pressing ***<page down>*** to review Screen 3.

ENTERING OR EDITING DATA

If any of the screens are blank, press the ***<F5>*** key to begin entering data. After completing all data entries for a particular screen, press ***<F10>*** to save the data to file. To continue to the next screen press ***<page down>***, otherwise press ***<ESC>*** to return to the Main Menu. The information entered in the input screen will form a part of the Early LSA Strategy Report. The following field descriptions are provided to explain the format and content of data that can be entered on the screen:

INPUTING ACQUISITION DATA

a. Project Manager's Last Name: Machine Generated

b. Project Manager's' First Name: Machine Generated

c. Project Manager's Office Symbol: Machine Generated

d. Project Manager's Command: Machine Generated

e. Project Manager's Phone Number: Machine Generated

f. Project Manager's Autovon Number: Machine Generated

g. Contract/Military Interdepartmental Procurement Request (MIPR) Number: Mandatory Entry (25 character - A/N) (If awarded, the contract/MIPR designation of the system pertinent to the Acquisition Program) (Extract from contract). If no contract/MIPR has been awarded, enter ***None***.

h. Procuring Activity: Mandatory Entry (10 character - A/N) (Designator of Command buying the item/equipment).

i. LSA Performing Activity: Optional Entry (10 character - A/N) (Identifier of Government or Contractor activity performing the LSA)

j. LSA Reporting Activity: Optional Entry (10 character - A/N) (Identifier of Government or Contractor activity reporting the LSA)

k. Acquisition Management Application: Mandatory Entry. (1 character - A) (Ref AR 15-14 and AR 70-1, Designators are Major, DAP, or IPR) (Use Y = Yes or N = No to identify application required). Only one type of application can contain a Y.

NOTES

Designation of Major, Designated Acquisition Project (DAP) or In Process Review (IPR) indicates overall program importance. Each is political, cost and essentially driven. A high level of program review categorically indicates the need for a greater level of management excellence and is therefore less manpower and funding resource constrained. Input is from Program Guidance Documentation.

End-Item user indicators assist management in development of resource allocation schemes and the time phasing of production capabilities. The broader the end user base, the more critical the review will be of ILS management issue and assessments topics.

Criticality of ILS assessment performance of resource and resource support tasks are dictated by the complexity of hardware technology, manpower resource availability, mobility requirements, etc. Not the least of these tasks are facility requirements that may require funding from Military Construction - Army, which is a five year minimum funding cycle.

System cost must always be kept in mind. As history reflects, the higher the cost, the less likely desired quantities of "operational float" equipment/item dollars will be available. Cost growths will subject the program to cutbacks for "bill payers". Cost will draw political attention and/or competition, and must be considered in the subject risk analysis process. Fewer operational float items/equipment will subsequently dictate the conformance/proof of compliance with established reliability and maintainability goals.

l. Type Acquisition: Mandatory Entry (1 character - A) (Ref AR 70-1)

NOTE

Type Acquisition, i.e., Developmental, NDI or PPIP, generally is indicative of program scale of time and depth, or degree of ILS/LSA data required or permissible under the program. For example, when Non-Developmental Systems are dictated without R&D funding for military conversion, then many assessment topics are negated from consideration or contracting.

FDEV = Full Development
NDI = Non-Developmental/Commercial Item
MNDI = Modified Non-Developmental Item
PPIP = Preplanned Product Improvement Program
(Use Y = Yes to identify appropriate type or N = No to identify type of acquisition.) Only one type of acquisition may contain a Y.

m. Acquisition Process: Mandatory Entry (1 Character - A) (Ref AR 70-1)

Traditional - Life Cycle Management Model
Streamlined - Army Streamlined Acquisition Process

(Use Y = Yes to identify correct process or N = No to identify the incorrect process) Only one type of process may contain a Y.

n. Type System: Mandatory Entry (Indicates mission use of item/equipment)

NOTE

Type System indicator is crucial in establishing subjective risk analysis factors (i.e., Combat, Air Defense, Support or Training is an underlying risk assessment/analysis driver.) Combat systems are inherently more RAM sensitive than support systems. The nature of the hardware system drives the degree of applicability of each ILS assessment topic and or subtopic.

(1) Aircraft System
(2) Electronic System
(3) Missile System
(4) Ordnance System
(5) Training System
(6) Space System
(7) Vehicle System
(8) Other: NOTE: It is realized that the above does not contain all the types of equipment under type system. If another type is required enter <Y> in this field and enter the type system such as:

Ship System
Soldier Support, etc.

This field is limited to 25 characters.

(Use Y = Yes to identify appropriate type).
Only one type of system may contain a <Y>.

o. System Estimated Cost: Mandatory Entry (10 character number)(Round to nearest $). This cost is the cost of a single system. (Obtained from Baseline Cost Estimate or factored estimates from like or comparable systems.)

SYSTEM DESCRIPTION

p. System Description: Mandatory Entry. Press the ***<page down>*** key to view this screen. Initially, this screen may be blank, however, after several uses, the System Description will appear in the window. To add or edit a System Description, press ***<F5>***. The cursor appears in the window and a word processing facility becomes active. Type in the system description. When complete, press ***<F10>*** to save the narrative text and return to the Main Menu.

If the screen contains a system description, it may be viewed. After viewing press the ***<ESC>*** key to return to the Main Menu.

3.5.2 PROCESS METHODOLOGY

DEVELOPING THE ACQUISITION DATABASE

At Program initiation, it is necessary for the ILS Manager to develop a data base in which to record the essential characteristics of the proposed system acquisition for evolving a viable ILS/LSA strategy.

The data base must be updated as decisions are rendered during the review process. As conditions/ situations change during the life cycle of the equipment, those activities and resultant strategy changes must be recorded in the file. This screen may also be used as a data source for the production of reports.

3.6 DESCRIBE SUPPORTABILITY OBJECTIVES

3.6.1 INPUT INSTRUCTIONS

Select DESCRIBE SUPPORTABILITY OBJECTIVES from the Task 101 Main Menu and press ***<Enter>***. A three part screen is displayed to input the Start and Finish dates, Supportability Objective Action Officer, and the narrative Supportability Objective Text. Table 3-2 provides a description of the fields that appear on this screen.

FIELD NAME	DESCRIPTION
Scheduled Start Date:	Mandatory Entry (Enter the date (DDMMYYYY) this attribute is to be started).
Scheduled Finish Date:	Mandatory Entry (Enter the date (DDMMYYYY) this attribute is to be completed). If not known enter an estimated date.
Action Officer Last Name	Mandatory Entry
Action Officer First Name	Mandatory Entry
Action Officer Office Symbol/ Contractor	Mandatory Entry
Action Officer Command/Cntrctr	Mandatory Entry
Action Officer Phone Number	Mandatory Entry
Action Officer Autovon	Optional Entry
Estimated Cost:	DO NOT MAKE ENTRY. This field is machine generated. It is the sum of the cost of the supportability attributes.

Table 3-2

When this screen is displayed, it is in the add/edit mode with the highlight bar on the SCHEDULED START DATE field. Complete both date fields before continuing or press <Enter> if these fields contain data and do not require changes.

SUPPORTABILITY ACTION OFFICER DATA

Press <F5> to add/edit the Supportability Objective Action Officer portion of the screen. To complete this portion of the screen, either input data into each field (if blank) or change the existing data and press <Enter>. If the fields were previously completed, use the <Enter> or arrow keys to scroll through the fields. After adding or changing the data, press <F10> to save. To return to the Main Menu without saving, press <ESC>.

After saving the Action Officer data, press either <F2> to input the narrative supportability objectives or <ESC> to return to the Task 101 Main Menu.

After pressing <F2> to enter the supportability objectives, press <F5> to start the edit mode. A cursor appears in the window entitled, "Describe Supportability Objectives". Use the word processing capability to enter narrative text. If more data is input that fits into the box, the top lines will scroll out. To view text that has scrolled out of the box use either the <Page up> or up arrow keys. When the narrative text input is complete, press <F10> to save the information or <ESC> to exit without saving.

To return to the Main Menu, press <ESC> or to change the information that was previously input press <F2>/<F5>.

3.6.2 ASSISTANCE IN DEVELOPING SUPPORTABILITY OBJECTIVES

In this section of the program, record the general supportability objectives for the LSA Program. Record specific supportability objectives against an ILS Element and Subelement as described in Section 3.7, Supportability Objectives Attributes.

FORMULATING SUPPORT-ABILITY OBJECTIVES

To assist in formulating the supportability objectives, consider the following:

a. Gather the analyses, assessments and historical data from a variety of sources, (i.e., TRADOC, FORSCOM, Laboratories)

b. Organize data to generate information to assist the logistics manager in developing a cost effective LSA program.

SOURCES OF DATA

c. Analyze and assess the following documentation as a prerequisite to LSA Program Strategy Development:

(1) Use Studies
(2) Probable design
(3) Preliminary design analysis for each alternative system
(4) Type of acquisition
(5) Design freedom
(6) Degree of new technology
(7) Historical data review (similar or equivalent system)
(8) Constraints analysis
(9) Work already accomplished.

3.6.3 PROCESS METHODOLOGY

Due to the complexity involved in major Weapon System design, the development of the LSA Strategy is one of the most difficult tasks faced by the logistic manager/engineer.

The following methodology is submitted to help the logistic manager determine a logistic support analysis strategy that will produce a cost effective LSA program that accomplishes the LSA objectives in a timely manner.

IMPORTANCE OF LSA TASK SCHEDULES

However, it must be understood that all LSA tasks must be completed in a timely manner. If the selected task is late or cannot be completed, the supportability and supportability related data will not be available in time to influence the design. In this case, time and resources were expended unnecessarily and could have been put to use elsewhere.

The LSA objectives can be categorized into three (3) basic groupings:

LSA OBJECTIVES

a. System Level Logistic Support Analysis including the following:

(1) System design and operational concept influence.
(2) Identification of supportability/cost/ and readiness drivers.
(3) Support concept development.
(4) System supportability/cost/readiness objectives.
(5) Trade-offs.

b. ILS Element Level Logistic Support Analysis including:

ILS ELEMENT CONCERNS

(1) Support system optimization.
(2) Logistic support resource requirements identification.
(3) Task and skills analysis.
(4) Early fielding analysis.
(5) Post production support analysis.

c. Supportability Assessment and Verification including:

SUPPORT-ABILITY VERIFICATION

(1) Supportability assessment plans and criteria.
(2) Support concept verification.
(3) Verification of logistic support resource requirements.
(4) Identification and correction of supportability problems.

3.7 SUPPORTABILITY OBJECTIVES ATTRIBUTES MENU

3.7.1 INPUT INSTRUCTIONS

To select this menu, return to the Task 101 Main Menu (see para 3.4) and highlight SELECT SUPPORTABILITY OBJECTIVES ATTRIBUTES and press ***<Enter>***.

DEFINING SYSTEM SUPPORT-ABILITY OBJECTIVES

The items on the Supportability Objectives Attributes Menu (Figure 3-1) may be selected in any order the analyst desires. However, each attribute should be considered, as all attributes will appear in the Early Strategy Report. Those attributes containing no entry will be reported as not applicable.

When the menu is initially displayed, all entries in the Applicability Field are **<N>**. This means that the default for all attributes is Not Applicable.

SELECTING APPLICABLE ILS ELEMENTS

Use the up and down arrow keys to move through the list of Supportability Objectives Attributes. For those attributes not required, leave the **<N>** in the applicability field. Where Supportability Objectives are required for an attribute, type a **<Y>** into the applicability field. Two options exist after changing the applicability field for all attributes, either exit to the Main Menu or input Supportability Objectives.

NOTE

To input the narrative text for an attribute, the applicability field must have a <Y> entered. If this entry is not made, an error message is displayed on the bottom line of the screen. Change the applicability field entry to proceed.

MARKING APPLICABLE ILS ELEMENTS

		Applicability Field
1.	Design Influence	Y
2.	Maintenance Planning	Y
3.	Manpower and Personnel	Y
4.	Supply Support	N
5.	Packaging, Handling and Storage	Y
6.	Support Equipment and TMDE	Y
7.	Training and Training Devices	N
8.	Technical Data	Y
9.	Computer Resources Support	Y
10.	Transportability and Transportation	N
11.	Facilities	Y
12.	Standardization and Interoperability	Y
13.	Reliability and Availability	N
14.	Support Management and Analysis	Y
15.	Cost Analysis and Funding	Y

Figure 3-1 Supportability Objectives Attributes

NOTE

The entries in the Applicability Fields of Figure 3-1 are examples.

SAVING YOUR SELECTIONS

If no supportability objectives are going to be entered, then move the highlight bar to the last item on the list, EXIT TO TASK 101 MAIN MENU and press ***<Enter>***. This procedure must be used to save the changes made to the applicability fields.

NOTE

If *<ESC>* is pressed instead of selecting the last item on the menu all changes will be lost. *<ESC>* exits without saving.

ATTRIBUTE ACTION OFFICER SCREEN

To enter a supportability objective for an attribute, use the up and down arrow keys to highlight it and press ***<Enter>***. The Action Officer Input Screen for the attribute selected will be displayed. To enter or edit data on this screen press ***<F5>***. The fields are described in Table 3-3. After adding data into or changing a field press ***<Enter>***. The ***<Enter>*** and arrow keys can also be used to move through fields that have been completed. After completing all entries, press ***<F10>*** to save or ***<ESC>*** to exit without saving. Press the ***<Page Down>*** key to continue to the next screen.

FIELD NAME	DESCRIPTION
Scheduled Start Date:	Mandatory Entry (Enter the date (DDMMYYYY) this attribute is to be started).
Scheduled Finish Date:	Mandatory Entry (Enter the date (DDMMYYYY) this attribute is to be completed). If not known enter an estimated date.
Action Officer Last Name	Mandatory Entry
Action Officer First Name	Mandatory Entry
Action Officer Office Symbol/ Contractor	Mandatory Entry
Action Officer Command/Cntrctr	Mandatory Entry
Action Officer Phone Number	Mandatory Entry
Action Officer Autovon	Optional Entry
Estimated Cost:	DO NOT MAKE ENTRY. This field is machine generated. It is the sum of the cost of the supportability attributes.

Table 3-3

3.8 SAMPLE SUPPORTABILITY OBJECTIVES SUB-ATTRIBUTE MENU SCREEN

3.8.1 INPUT INSTRUCTIONS

When an attribute from (para 3.7) is selected and the ATTRIBUTE ACTION OFFICER Screen is complete, the SUPPORTABILITY OBJECTIVES SUB-ATTRIBUTE MENU (Figure 3-2) is displayed. It allows the user to further specify the sub-attribute under which a supportability objective is applicable. These sub-attributes may be selected in any order.

		Applicability Field
1.	MANPRINT	Y
2.	Energy Efficiency	Y
3.	Hazardous Materials Usage	Y
4.	Life Cycle Costs	Y
5.	Human Factors Engineering	Y
6.	Safety	N
7.	BITE	N
8.	Source Selection or Weighing	N
9.	Testing Feedback or Corrections	Y
10.	Contractor Incentives	N
11.	RAM-Driven Support Costs	Y
12.	Preplanned Product Improvements	N
13.	Transportability	N
14.	Facility Limitations	Y
15.	Nuclear Hardening Requirements	N
16.	Packaging/Handling Constraints	N
17.	Design for Discard/Testability	Y
18.	System Readiness Objective	Y
19.	Serial Number Tracking	N
20.	Use of Metric Measurement	Y
21.	Embedded Training	N

Figure 3-2
Sample Sub-Attribute Menu

SUB-ATTRIBUTE SELECTION

The selection process for sub-attributes works the same way as the selection of attributes. For sub-attributes that have supportability objectives, change the applicability field to **<Y>** otherwise leave it as **<N>**. To save the entries and return to the previous menu, highlight the last item on the list and press **<Enter>**.

NOTE

Remember that the sub-attributes that appear on this screen are all related to the attribute displayed above the menu. Do not confuse a sub-attribute supportability objective with a supportability objective that falls under another attribute, (e.g., training requirements fall under the training and training devices attribute while facilities required for training fall under the facilities attribute.

Use the up and down arrow keys to highlight a choice from the menu and press **<Enter>**.

3.9 SAMPLE SUB-ATTRIBUTES INPUT SCREEN

3.9.1 GENERAL

A GENERIC EXAMPLE FOR COMPLETING A SUB-ATTRIBUTE SCREEN

Each attribute displayed on the Supportability Objective Attributes Menu has a series of related sub-attributes. The input screens for them have to be completed in the same way. The paragraphs that follow provide a generic example of how to complete any sub-attribute screen.

3.9.2 INPUT INSTRUCTIONS

After selecting an attribute and sub-attribute, the Sub-Attribute Selection Screen is displayed. At the top of the screen, the Equipment Type and selected attribute are displayed. These fields can not be changed. The upper portion of the screen requires input of the Sub-Attribute Action Officer. The lower portion of the screen is used to input the narrative text of supportability objectives.

Before proceeding to input the supportability objectives, the Action Officer portion of the screen must be completed. To enter the edit mode, press ***<F5>***. The SCHEDULED DATE FIELD is highlighted and becomes active for data input. Complete both date fields before moving to the Action Officer portion of the screen.

SUB-ATTRIBUTE ACTION OFFICER

The Action Officer fields are listed and described in Table 3-4. Follow the instructions in the table to input data into the fields and press ***<Enter>*** after completing each one. After completing the last field, press ***<F10>*** to save or ***<ESC>*** to return without saving to the Attributes Menu.

FIELD NAME	DESCRIPTION
Scheduled Start Date:	Mandatory Entry (Enter the date (DDMMYYYY) this attribute is to be started).
Scheduled Finish Date:	Mandatory Entry (Enter the date (DDMMYYYY) this attribute is to be completed). If not known enter an estimated date.
Action Officer Last Name	Mandatory Entry
Action Officer First Name	Mandatory Entry
Action Officer Office Symbol/ Contractor	Mandatory Entry
Action Officer Command/Cntrctr	Mandatory Entry
Action Officer Phone Number	Mandatory Entry
Action Officer Autovon	Optional Entry
Estimated Cost:	

Table 3-4

EDITING ACTION OFFICER DATA

If data was previously entered into the Action Officer fields, use the *<F5>* key to edit. Press the *<Enter>* key to move the highlight bar from field to field. Make any changes or additions required and upon completion, press *<F10>* to save.

After saving the Action Officer data, press *<Enter>* to return to the Sub-Attribute Menu or *<F2>* to input/edit the supportability objectives. When *<F2>* is pressed, a second set of function keys is displayed on the bottom of the screen.

INPUTING SUB-ATTRIBUTE SUPPORT-ABILITY OBJECTIVES

Press **<F5>** to activate the supportability objective narrative input field. A cursor appears in the field to indicate it is active. A full function word processor is available for text entry. Input all the supportability objectives that fall under the sub-attribute. When complete, press **<F10>** to save and either **<ESC>** to return to the Sub-Attribute Menu or **<F2>** to edit the supportability objectives that were just input.

3.10 SECTION II - EARLY STRATEGY REPORT INPUT SCREENS

Paragraph 3.10 through 3.16 deal with the screens required to input data to produce portions of Section II of the Early Strategy Report. Included in this section of the report are selected LSA Tasks, their requirement and selection rationale.

3.11 SELECT LSA TASKS

From the Task 101 Main Menu Para 3.4, highlight SELECT LSA TASKS and press **<Enter>**. The LSA Task Selection Menu is displayed (see Figure 3-3).

3.12 LSA TASK SELECTION MENU

3.12.1 INPUT INSTRUCTIONS

NOTE

Acquisition Data/System Description (Para 3.5) and Describe Supportability Objectives (Para 3.6) must be completed prior to selecting LSA Tasks. If this sequence of events has not been followed, an error message will be displayed on the bottom line of the screen and the software will not allow the user to continue. Press any key and then select another option from the

This screen is used to select the LSA Tasks that must be performed for the Weapon System/End Item displayed on the screen.

Initially, the highlight bar appears on Task 101. To change the position of the highlight bar use the up and down arrow keys or ***<Page up>*** and ***<Page down>***.

NOTE

The default value for the Applicability Field is *<N>*.

To select an LSA Task, highlight it and press ***<Y>***. The Applicability Field will change from the default N to Y. This indicates that the task has been selected.

If no supporting rationale is to be input at this time, then after selecting the LSA Tasks, highlight the last item on the menu, EXIT TO 101 MAIN MENU, to save the Applicability Field inputs. Otherwise proceed to paragraph 3.13 for instructions on entering task selection rationale.

NOTE

<ESC> **exits to the Main Menu without saving the Applicability Field Inputs. Caution should be used with this key, since an unintentional press may cause the loss of a significant amount of data.**

The entries contained in the Applicability Field are examples.

Task		Applicability Field
101	Development of an Early Logistic Support Analysis Strategy	Y
102	Logistic Support Analysis Plan	Y
103	Program and Design Reviews	N
201	Use Study	Y
202	Mission Hardware, Software, and Support System Standardization	N
203	Comparative Analysis	Y
204	Technological Opportunities	Y
205	Supportability and Supportability Related Design Factors	Y
301	Functional Requirements Identification	Y
302	Support System Alternatives	Y
303	Evaluation of Alternatives and Tradeoff Analysis	Y
401	Task Analysis	Y
402	Early Fielding Analysis	Y
403	Post Production Support Analysis	Y
501	Supportability Test,	

Figure 3-3 LSA Task Selection Menu

3.12.2 DETERMINING LSA TASK APPLICABILITY

DETERMINING LSA TASK APPLIC-ABILITY

Consider the following when selecting the LSA Tasks required to support this equipment.

OBJECTIVE:

LIFE CYCLE PHASE APPLIC-ABILITY

To select a set of LSA Tasks and Subtasks from MIL-STD-1388-1A that provide the best return on investment for the designated life cycle phase of the system equipment.

PROCEDURES:

LIFE CYCLE PHASE REFERENCE

a. Use the life cycle phase and the type acquisition to select the relevant LSA Tasks/ Subtasks. Review Appendix A, Table III of MIL-STD-1388-1A, Notice 2 to determine the LSA Tasks/Subtasks that should be considered for each life cycle phase.

DETERMINING IF AN LSA TASK SHOULD BE PERFORMED

b. Review the task description for each task recommended by the table against currently available design and logistic information for the system equipment. Determine whether, by performing the LSA Task:

(1) The potential exists to influence the design to satisfy a supportability objective previously identified.

(2) Innovative support concepts will result to reduce logistic resources required to support the system.

(3) Task performance will increase productivity, improve utilization of resources during the overall LSA Process, establish an effective management structure, and/or efficiently distribute data and information to all members of the project team.

(4) Logistic problems found in similar and/or equivalent systems will be eliminated.

(5) LSA Tasks and Subtasks results which accomplish a supportability objectives.

TYPE OF ACQUISITION CONSIDER-ATIONS

Remember to consider the type of acquisition when choosing LSA Tasks and Subtasks, since the design may be frozen, or the time available to perform the task too short to have any effect on the system support concept.

TASK SELECTION RATIONALE

c. Using these selection criteria, choose the preliminary set of LSA Tasks. For each selected task, determine the requirement and develop a rationale for task performance. The rationale should contain:

(1) Potential Design Impact.

(2) Cost Effectiveness.

(3) Availability of Data.

(4) Cost Estimate.

(5) Responsible Agency Functional Area.

(6) Other (e.g., satisfying a supportability objective)

TRADE-OFF

d. Trade-off the resources (e.g., manpower, skills and funding) required to perform the task against the expected results obtained. The trade-off will balance the cost of performing the task against either improvements in readiness or reductions in life cycle cost and logistic resource requirements. Supportability factors include maintenance, design, standardization, RAM, O&S costs, operational approaches, and logistic support resources.

FINAL DETERMINATION

e. Keep LSA Tasks that achieve supportability objectives, have the potential to improve supportability, cost and readiness, or reduce logistics resources without reducing system/equipment availability below acceptable values. Eliminate any task that does not provide a good return on investment (e.g., tasks with small (or no) impact on supportability, cost, or readiness).

RESOURCE SHORTFALL RESOLUTION

f. For selected tasks, identify any resource shortfall required to perform the task. Resolve these shortfalls with the Program Manager prior to including them in the LSA strategy. LSA Tasks resulting in significant benefits to the government should be funded.

3.13 TASK ACTION OFFICER SCREEN

3.13.1 INPUT INSTRUCTIONS

To input the task selection rationale, highlight a selected LSA Task (e.g., a task where a Y has been entered into the Applicability Field) and press ***<Enter>***. A Task Action Officer Screen is displayed. If the screen is blank it must be completed to continue. If the screen was previously completed, then use ***<F5>*** to Edit it or ***<Page down>*** to continue to the next screen.

Use the Task Action Officer Screen to place the name and office symbol of the person responsible for doing the task. Table 3-5 contains the field names and descriptions for the Task Action Officer Screens.

FIELD NAME	DESCRIPTION
Scheduled Start Date:	Mandatory Entry (Enter the date (DDMMYYYY) this attribute is to be started).
Scheduled Finish Date:	Mandatory Entry (Enter the date (DDMMYYYY) this attribute is to be completed). If not known enter an estimated date.
Action Officer Last Name	Mandatory Entry
Action Officer First Name	Mandatory Entry
Action Officer Office Symbol/ Contractor	Mandatory Entry
Action Officer Command/Cntrctr	Mandatory Entry
Action Officer Phone Number	Optional Entry
Action Officer Autovon	
Estimated Cost:	Input the cost to do the LSA Task. Include all labor categories involved. This field may be completed after a cost estimate has been done

Table 3-5

3.13.2 PROCESS METHODOLOGY

LSA Task performance is a complex detailed job. The tasks involve a number of logistics functional areas. However, each task has its own main focus and therefore must be assigned to a specific functional area for completion. This screen is used to document the functional area responsible and identify the action officer who will carry out the work.

3.14 TASK SPECIFIC MENU

After completing the Task Action Officers Screen, the Task specific Menu is displayed (Figure 3-4).

```
PURPOSE
REQUIREMENTS
POTENTIAL DESIGN IMPACT
COST EFFECTIVENESS
AVAILABILITY OF DATA
TIME/COST ESTIMATE
RESPONSIBLE ACTIVITY
OTHER.
```

Figure 3-4 Task Specific Menu

This menu contains the specific areas that can be used to document the rationale for selecting the LSA Task displayed on the upper portion of the screen. An entry is not required in each area.

NOTE

Description of the Task Specific Menu choices are continued in the paragraphs in

To enter text, use the up and down arrow keys to highlight the choice and press ***<Enter>***. A blank narrative input screen is displayed.

After completing the narrative input and saving the text, the software returns to the Task Specific Menu. The User can either make another choice to input additional rational or return back to the LSA Task Selection Screen by pressing ***<ESC>***.

3.15 TASK SPECIFIC SCREEN

3.15.1 The data entered on the input screen produces output for Section II (e.g., LSA Task selection) of the Early Strategy Report.

3.15.2 Use this screen to type the rationale for performing the task as it pertains to the choice made (e.g., cost effectiveness or potential design impact) on the Task Specific Menu.

3.15.3 To start entering/editing narrative in the Task Specific Screen, press ***<F5>***. The cursor appears indicating that the software is ready for text input. Use the word processing capabilities to input the text. If you do not wish to save it, then press ***<ESC>*** to exit without saving. Otherwise, press ***<F10>*** to save the input and leave the edit mode.

3.15.4 The Task Specific Screen remains displayed without showing the next that was just input. To view or edit the text, press ***<F5>***. To return to the Task Specific Menu, press ***<ESC>***.

NOTE

If text has been previously input on a Task Specific Screen it will be displayed when selecting that screen again from the Task

3.16 TASK PURPOSE, REQUIREMENTS AND RATIONALE

3.16.1 PURPOSE. Extract the purpose of the appropriate LSA Task from the task description in MIL-STD-1388-1A, and enter it into this field. Include any other information (e.g., task inputs/outputs) from the MIL-STD deemed appropriate for the system being described.

EXAMPLE PURPOSE
TASK 203 COMPARATIVE ANALYSIS

To select or develop a Baseline Comparison System (BCS) representing characteristics of the new system/equipment for: (1) projecting supportability related parameters, making judgments concerning the feasibility of the new system/equipment supportability parameters, and identifying targets for improvement, and (2) determining the supportability, cost, and readiness drivers of the new system/equipment.

Figure 3-5 Sample Task Specific Screen

3.16.2 REQUIREMENTS. Enter a description of WHAT has to be done to accomplish this LSA Task during a particular phase of the system/equipment Life Cycle. Break out the individual subtasks and suggest which studies or analyses should be performed under that subtask. In some cases, consider a component, set of components, or the entire system/equipment, and in others, specific ILS elements (e.g., MOSs, TMDE, Design, Maintainability, etc.). Indicate any specific models or analysis techniques to be used to accomplish the study or analysis. In the description, try to relate the performance requirement to the system/equipment, component, and/or specific logistic resources required for support.

3.16.3 POTENTIAL DESIGN IMPACTS. Enter a description of how the results of the task are fed back into the design. Describe the potential design changes and the effect on supportability, cost and readiness factors. Show where the expected savings in logistic resource will occur and/or how the system/equipment availability will change.

3.16.4 COST EFFECTIVENESS. Provide a justification for performing the task based on cost savings realized or logistic resources reductions. Consider these effects on system operation and support over the life of the system.

3.16.5 AVAILABILITY OF DATA. Provide a justification for performing the task based on data becoming available to support the study or analysis. A suggestion of the sources to obtain the data and/or an indication of when the data will be ready can also be included in this section.

3.16.6 TIME AND COST ESTIMATE. Estimate the time and cost to perform each subtask selected within the Task. Use the approach developed by the Material Readiness Support Activity and documented in the Cost Estimating Methodology for Logistic Support Analysis (CELSA) Guide (MRSAP 700-11).

3.16.7 Cost Estimating Using CELSA Guide. The CELSA Guide includes only manhour estimates for LSA engineering manhours. To determine total time and cost for the effort, estimated hours for other disciplines must be included (e.g., Management, Clerical and Administrative).

To Apply the MRSA methodology:

a. Determine the LSA Program Variables.

(1) Type of Acquisition
(2) Life Cycle Phase
(3) Acquisition Strategy
(4) Type of System/Equipment
(5) Complexity of System/Equipment
(6) Number of LSA/Repairable Candidate Items
(7) LSA Tasks Done per Life Cycle Phase
(8) Number of Manhours per LSA Task
(9) Historical data
(10) Experiences Learned
(11) Program Constraints

b. From Appendix A of the CELSA Guide, select the Program Type and Support Concept Scalars using the type of acquisition and support concept variables and the LSA Task/Subtask.

c. Use Appendix B (For Electrical Systems), or Appendix C (For Mechanical Systems) to determine the manhours to perform a given subtask. Choose the page for the applicable life cycle phase, then move down the Task/Subtask description column to th e appropriate Task Subtask series. Along the top, find the number of LSA Candidate/ Repairable Items that most closely approximates the system/equipment being analyzed. Then, find the column containing the values for the system/equipment complexity (low, average, high) and move down to the LSA Task/Subtask being estimated and select the hours.

d. Multiply the manhours selected from the table by the Program Type and Support Concept Scalars to determine the time estimated to perform the LSA Task for the system/equipment under analysis.

e. To determine the cost, multiply the manhours by the average combined rate of $48/hour (recommended by MRSA). The rate corresponds to the base year of 1988. Apply the appropriate escalation for the "then year" in which the program elements are implemented. This figure will be the cost estimate for a particular LSA Task/ Subtask. Enter the cost derived here and in the field estimated cost on the Task Action Officers Screen.

3.16.8 RESPONSIBLE ACTIVITY. Identify the government and contractor agencies responsible for task and subtasks/performance. Include the logistic disciplines that contribute to the effort.

3.16.9 OTHER. This section is available for entering narrative data to provide additional supporting rationale for the LSA Task/Subtask. Use this section when the rationale does not logically fit into any other section. Example cases may include: a command decision to always perform a given task; the task is being done to support a future enhancement to the system; supporting data is required for another "downstream" task.

CHAPTER 4
REPORTS

4.1 GENERAL DESCRIPTION OF REPORTS PROCESSING AND OUTPUTS

ENTERING THE REPORTS MODULE

4.1.1 From the analysis portion of the software to produce a report, save your input by pressing ***<F10>***. Then press the ***<ESC>*** until you return to the LSA Main Menu Screen (para 3.4). Select OPERATIONS, press ***<Enter>*** and the ANALYSTS/REPORTS options are displayed. Highlight REPORTS and press ***<Enter>***. The Reports Menu Screen (see Figure 4-1) is displayed.

4.1.2 If not in ANALYSIS mode, do the following:

GETTING IN FROM THE BEGINNING

a. After executing the ALSAT software, the Log-on Welcome Screen is displayed. On the Next screen enter your ANALYST ID and ANALYST Password. This screen is followed by an Analyst Information Screen which allows the user to accept it as is or make changes. Upon acceptance, the Equipment Selection Screen is displayed, which is used to select the equipment by high-lighting the desired item and pressing ***<Enter>***. (See APJ User Guide, Executive Manual).

b. After equipment selection, the Detailed Equipment Information Screen is displayed. This screen is for viewing only and cannot be changed at this point. If changes are required, see APJ Executive Module User's Guide.

c. Press any key to proceed to the LSA Main Menu Screen. Of the five menu options, only the OPERATIONS feature is covered in this manual. For the other four options, see APJ Executive Module User's Manual. Highlight the OPERATIONS option and press ***<Enter>***. At this point, the Operations and ANALYSIS/REPORTS pull down menu is displayed. Highlight REPORTS and press ***<Enter>***.

4.2 REPORTS MENU

4.2.1 From this menu various reports concerning Sections I and II of the Early Strategy Report can be selected. Three types of reports are provided, draft/final narrative, text, cost, and status.

4.2.2 The various reports are discussed in Sections 4-3 through 4-8.

4.2.3 These reports may be viewed on the screen, printed on hardcopy or written to disk.

4.2.4 Use the up and down arrow keys to highlight the desired report and press ***<Enter>*** to select and generate it.

OUTPUT DEVICE

4.2.5 After highlighting and selecting it, the analyst will be presented with a screen to select the output destination either VIEW, PRINT, DISK or EXIT. For further details on the output destinations, see the Executive Module User Manual.

LEAVING THE REPORTS MODULE

4.2.6 After the report is sent to the designated output destination, the output Destination Screen is displayed again. Either select another output destination or press *<ESC>* to return to the Reports Menu. Pressing *<ESC>* again, exits the REPORTS Module and returns to the LSA Main Menu.

EARLY STRATEGY REPORT SECTION 1
ACQUISITION DATA/SYSTEM DESCRIPTION
SUPPORTABILITY OBJECTIVES
DESIGN INFLUENCE
MAINTENANCE PLANNING
MANPOWER AND PERSONNEL
SUPPLY SUPPORT
PACKAGING, HANDLING AND STORAGE
SUPPORT EQUIPMENT AND TMDE
TRAINING AND TRAINING DEVICES
TECHNICAL DATA
COMPUTER RESOURCES SUPPORT
TRANSPORTABILITY AND TRANSPORTATION
FACILITIES
STANDARDIZATION AND INTEROPERABILITY
RELIABILITY AND AVAILABILITY
SUPPORT MANAGEMENT AND ANALYSIS
COST ANALYSIS AND FUNDING
LSA TASKS (EARLY STRATEGY REPORT PART II)

REPORT TITLES

101 - DEVELOPMENT OF AN EARLY LOGISTIC SUPPORT ANALYSIS STRATEGY
102 - LOGISTIC SUPPORT ANALYSIS PLAN
103 - PROGRAM AND DESIGN REVIEWS
201 - USE STUDY
202 - MISSION HARDWARE, SOFTWARE, AND SUPPORT SYSTEM STANDARDIZATION
203 - COMPARATIVE ANALYSIS
204 - TECHNOLOGICAL OPPORTUNITIES
205 - SUPPORTABILITY AND SUPPORTABILITY RELATED DESIGN FACTORS
301 - FUNCTIONAL REQUIREMENTS IDENTIFICATION
302 - SUPPORT SYSTEM ALTERNATIVES
303 - EVALUATION OF ALTERNATIVES AND TRADEOFF ANALYSIS
401 - TASK ANALYSIS
402 - EARLY FIELDING ANALYSIS
403 - POST PRODUCTION SUPPORT ANALYSIS
501 - SUPPORTABILITY TEST, EVALUATION, AND VERIFICATION LSA TASK STATUS REPORT

Figure 4-1 Reports Menu

4.3 EARLY STRATEGY REPORT SECTION I

MANAGEMENT STATUS

4.3.1 This report is designed to provide management the status of Section I (i.e., the System Description, Acquisition Strategy, and Supportability Objectives) of the Early Strategy Report and after review and correction provide an output ready for publication. The format is provided in Figure 4-2.

SECTION I
EQUIPMENT I.D.
AS OF:

A.	**SYSTEM DESCRIPTION**	**AS OF DATE:**
	Project Manager Name	Project Manager Command
	Project Manager Office Symbol	Phone Number
	Autovon Number	Contract/MIPR Number
	Procuring Activity	LSA Performing Activity
	LSA Reporting Activity	Type Acquisition
	Acquisition Management Application	Acquisition Process
	Type System	System Estimated Cost

THE TEXT OF THE SYSTEM DESCRIPTION WILL BE DISPLAYED HERE

B.	**SUPPORTABILITY OBJECTIVES**	
	Action Officer Name	Action Officer Command
	Action Officer Office Symbol	Phone Number
	Autovon Number	Estimated cost of all Supportability Attributes

THE TEXT OF THE SUPPORTABILITY OBJECTIVES IS DISPLAYED HERE

1. **Design Influence**

Action Officer Name	Action Officer Command
Action Officer Office Symbol	Phone Number
Autovon Number	Estimated cost of all the Design Influence Sub-Attributes

THE FOLLOWING WILL LIST THE SUB-ATTRIBUTES WITHIN THIS ATTRIBUTE CONTAINING THE ACTION OFFICER INFORMATION AND TEXT OF THE SUB-ATTRIBUTE. IT WILL ALSO CONTAIN THE ESTIMATED COST OF THE SUB-ATTRIBUTE.

2. **Maintenance Planning**

Action Officer Name	Action Office Command
Action Officer Office Symbol	Phone Number
Autovon Number	Estimated cost of all

Figure 4-2 Early Strategy Report
(page 1 of 5)

THE FOLLOWING WILL LIST THE SUB-ATTRIBUTES WITHIN THIS ATTRIBUTE CONTAINING THE ACTION OFFICER INFORMATION AND TEXT OF THE SUB-ATTRIBUTE. IT WILL ALSO CONTAIN THE ESTIMATED COST OF THE SUB-ATTRIBUTE.

3. **Manpower and Personnel**

Action Officer Name	Action Office Command
Action Officer Office Symbol	Phone Number
Autovon Number	Estimated cost of all the Manpower and Personnel Sub-Attributes

THE FOLLOWING WILL LIST THE SUB-ATTRIBUTES WITHIN THIS ATTRIBUTE CONTAINING THE ACTION OFFICER INFORMATION AND TEXT OF THE SUB-ATTRIBUTE. IT WILL ALSO CONTAIN THE ESTIMATED COST OF THE SUB-ATTRIBUTE.

4. **Supply Support**

Action Officer Name	Action Office Command
Action Officer Office Symbol	Phone Number
Autovon Number	Estimated cost of all the Supply Support Sub-Attributes

THE FOLLOWING WILL LIST THE SUB-ATTRIBUTES WITHIN THIS ATTRIBUTE CONTAINING THE ACTION OFFICER INFORMATION AND TEXT OF THE SUB-ATTRIBUTE. IT WILL ALSO CONTAIN THE ESTIMATED COST OF THE SUB-ATTRIBUTE.

5. **Support Equipment and TMDE**

Action Officer Name	Action Office Command
Action Officer Office Symbol	Phone Number
Autovon Number	Estimated cost of all the Support Equipment and TMDE Sub-Attributes

THE FOLLOWING WILL LIST THE SUB-ATTRIBUTES WITHIN THIS ATTRIBUTE CONTAINING THE ACTION OFFICER INFORMATION AND

Figure 4-2 Early Strategy Report (page 2 of 5)

6. **Training and Training Devices**

Action Officer Name	Action Office Command
Action Officer Office Symbol	Phone Number
Autovon Number	Estimated cost of all the Training and Training Devices Sub-Attributes

THE FOLLOWING WILL LIST THE SUB-ATTRIBUTES WITHIN THIS ATTRIBUTE CONTAINING THE ACTION OFFICER INFORMATION AND TEXT OF THE SUB-ATTRIBUTE. IT WILL ALSO CONTAIN THE ESTIMATED COST OF THE SUB-ATTRIBUTE.

7. **Technical Data**

Action Officer Name	Action Office Command
Action Officer Office Symbol	Phone Number
Autovon Number	Estimated cost of all the Technical Data Sub-Attributes

THE FOLLOWING WILL LIST THE SUB-ATTRIBUTES WITHIN THIS ATTRIBUTE CONTAINING THE ACTION OFFICER INFORMATION AND TEXT OF THE SUB-ATTRIBUTE. IT WILL ALSO CONTAIN THE ESTIMATED COST OF THE SUB-ATTRIBUTE.

8. **Computer Resources Support**

Action Officer Name	Action Office Command
Action Officer Office Symbol	Phone Number
Autovon Number	Estimated cost of all the Computer Resources Support Sub-Attributes

THE FOLLOWING WILL LIST THE SUB-ATTRIBUTES WITHIN THIS ATTRIBUTE CONTAINING THE ACTION OFFICER INFORMATION AND TEXT OF THE SUB-ATTRIBUTE. IT WILL ALSO CONTAIN THE ESTIMATED COST OF THE SUB-ATTRIBUTE.

9. **Packaging, Handling and Storage**

Action Officer Name	Action Office Command
Action Officer Office Symbol	Phone Number
Autovon Number	Estimated cost of all the Packaging, Handling and Storage Sub-Attributes

Figure 4-2 Early Strategy Report (page 3 of 5)

THE FOLLOWING WILL LIST THE SUB-ATTRIBUTES WITHIN THIS ATTRIBUTE CONTAINING THE ACTION OFFICER INFORMATION AND TEXT OF THE SUB-ATTRIBUTE. IT WILL ALSO CONTAIN THE ESTIMATED COST OF THE SUB-ATTRIBUTE.

10. **Transportation and Transportability**

Action Officer Name	Action Office Command
Action Officer Office Symbol	Phone Number
Autovon Number	Estimated cost of all the Transportation and Transportability Sub-Attributes

THE FOLLOWING WILL LIST THE SUB-ATTRIBUTES WITHIN THIS ATTRIBUTE CONTAINING THE ACTION OFFICER INFORMATION AND TEXT OF THE SUB-ATTRIBUTE. IT WILL ALSO CONTAIN THE ESTIMATED COST OF THE SUB-ATTRIBUTE.

11. **Facilities**

Action Officer Name	Action Office Command
Action Officer Office Symbol	Phone Number
Autovon Number	Estimated cost of all the Facilities Sub-Attributes

THE FOLLOWING WILL LIST THE SUB-ATTRIBUTES WITHIN THIS ATTRIBUTE CONTAINING THE ACTION OFFICER INFORMATION AND TEXT OF THE SUB-ATTRIBUTE. IT WILL ALSO CONTAIN THE ESTIMATED COST OF THE SUB-ATTRIBUTE.

12. **Standardization and Interoperability**

Action Officer Name	Action Office Command
Action Officer Office Symbol	Phone Number
Autovon Number	Estimated cost of all the Standardization and Interoperability Sub-Attributes

THE FOLLOWING WILL LIST THE SUB-ATTRIBUTES WITHIN THIS ATTRIBUTE CONTAINING THE ACTION OFFICER INFORMATION AND TEXT OF THE SUB-ATTRIBUTE. IT WILL ALSO CONTAIN THE ESTIMATED COST OF THE SUB-ATTRIBUTE.

Figure 4-2 Early Strategy Report (page 4 of 5)

13. **Reliability, Availability and Maintainability**

Action Officer Name	Action Office Command
Action Officer Office Symbol	Phone Number
Autovon Number	Estimated cost of all the Reliability, Availability and Maintainability Sub-Attributes

THE FOLLOWING WILL LIST THE SUB-ATTRIBUTES WITHIN THIS ATTRIBUTE CONTAINING THE ACTION OFFICER INFORMATION AND TEXT OF THE SUB-ATTRIBUTE. IT WILL ALSO CONTAIN THE ESTIMATED COST OF THE SUB-ATTRIBUTE.

14. **Support Management and Analysis**

Action Officer Name	Action Office Command
Action Officer Office Symbol	Phone Number
Autovon Number	Estimated cost of all the Support Management and Analysis Sub-Attributes

THE FOLLOWING WILL LIST THE SUB-ATTRIBUTES WITHIN THIS ATTRIBUTE CONTAINING THE ACTION OFFICER INFORMATION AND TEXT OF THE SUB-ATTRIBUTE. IT WILL ALSO CONTAIN THE ESTIMATED COST OF THE SUB-ATTRIBUTE.

15. **Cost Analysis and Funding**

Action Officer Name	Action Office Command
Action Officer Office Symbol	Phone Number
Autovon Number	Estimated cost of all the Cost Analysis and Funding Sub-Attributes

THE FOLLOWING WILL LIST THE SUB-ATTRIBUTES WITHIN THIS ATTRIBUTE CONTAINING THE ACTION OFFICER INFORMATION AND TEXT OF THE SUB-ATTRIBUTE. IT WILL ALSO CONTAIN THE ESTIMATED COST OF THE SUB-ATTRIBUTE.

Figure 4-2 Early Strategy Report (page 5 of 5)

DATA CONTAINED IN REPORT

4.3.2 When a Supportability Objective Attribute/ Sub-Attribute contains a Y in the Applicability Field, narrative must be present. In the case where no text is present, the Attribute/Sub-Attribute will be printed with the statement NO ENTRY. This NO ENTRY statement should alert management to contact the Action Officer to either make entries to their Supportability Attribute/Sub-Attribute or change the Supportability Attribute Applicability Field to an N on the Supportability Attribute Menu (para 3.7) or the Supportability Sub-Attribute Menu (para 3.8). If the Attribute/Sub-Attribute contains an N in the Applicability Field, the attribute/sub-attribute will be listed with the statement NOT APPLICABLE

4.3.3 This report should be viewed by management prior to external distribution in order to ensure all required Attributes/Sub-Attributes contain a correct entry.

MANAGEMENT REVIEW

4.4 ACQUISITION DATA/SYSTEM DESCRIPTION

REPORT CONTENTS

4.4.1 This report contains the Equipment I.D. and all the information entered on the Acquisition Data/System Description screens. It is used by the various analysts to determine logical entries for the Supportability Attributes and LSA Tasks. It also contains machine generated report data.

4.4.2 An example of the report format is present in Figure 4-3.

ACQUISITION DATA

AS OF:

EQUIPMENT ID: 81MM Mortar

PROJECT MANAGER INFORMATION

NAME: COMMAND:

OFFICE SYMBOL: PHONE NUMBER:

AUTOVON:

PROJECT INFORMATION

CONTRACTOR/MIPR NUMBER: PROCURING ACTIVITY:

LSA PERFORMING ACTIVITY: LSA REPORTING ACTIVITY:

TYPE ACQUISITION: ACQUISITION PROCESS:

ACQUISITION MANAGEMENT APPLICATION: TYPE SYSTEM:

SYSTEM ESTIMATED COST:

SYSTEM DESCRIPTION

TEXT OF SYSTEM DESCRIPTION

Figure 4-3 Acquisition/Data/System Description Report

4.5 SUPPORTABILITY OBJECTIVES

4.1.5 This report will contain all the information for the Supportability Objectives such as:

REPORT CONTENTS

a. Equipment I.D.
b. Action Officers Name
c. Action Officers Phone Number
d. Action Officers Office Symbol
e. Estimated Cost of all the Supportability Attributes
f. Machine Generated Report Date
g. Supportability Objective Narrative

PURPOSE

4.5.2 This report is used by the various analysts prior to determining logical entries for the Supportability Attributes and LSA Tasks.

4.5.3 An example of this report is presented in Figure 4-4.

SUPPORTABILITY OBJECTIVE

AS OF:

EQUIPMENT ID: 81MM MORTAR

ACTION OFFICER INFORMATION

SCHEDULED START DATE:	SCHEDULED FINISH DATE:
NAME:	OFFICE SYMBOL:
COMMAND:	PHONE NUMBER:
AUTOVON:	ESTIMATED COST:

SUPPORTABILITY OBJECTIVE

TEXT OF SUPPORTABILITY OBJECTIVE

Figure 4-4 Supportability Objectives

4.6 SUPPORTABILITY ATTRIBUTES

REPORT CONTENTS

4.6.1 This report will contain all the information for the Supportability Attribute selected. It will also contain each of the sub-attributes within the attribute selected such as:

a. Equipment I.D.
b. Attribute (Selected)
c. Sub-Attribute
d. Action Officers Name
e. Phone #
f. Office Symbol
g. Estimated Cost of the Sub-Attributes
h. Sub-Attribute Text
i. Machine Generated Report Date
j. Scheduled Start Date
k. Scheduled Finish Date

4.6.2 An example of this report is presented in Figure 4-5.

4.6.3 The report will continue through all of the sub-attributes within an attribute.

DESIGN INFLUENCE

AS OF:

EQUIPMENT ID: 81MM MORTAR

ACTION OFFICER INFORMATION

SCHEDULED START DATE:	SCHEDULED FINISH DATE:
NAME:	OFFICE SYMBOL:
COMMAND:	PHONE NUMBER:
AUTOVON:	ESTIMATED COST:

SUB-ATTRIBUTES
MANPRINT
ACTION OFFICER INFORMATION

SCHEDULED START DATE:	SCHEDULED FINISH DATE:
NAME:	OFFICE SYMBOL:
COMMAND:	PHONE NUMBER:
AUTOVON:	ESTIMATED COST:

TEXT OF MANPRINT.

ENERGY EFFICIENCY
ACTION OFFICER INFORMATION

SCHEDULED START DATE:	SCHEDULED FINISH DATE:
NAME:	OFFICE SYMBOL:
COMMAND:	PHONE NUMBER:
AUTOVON:	ESTIMATED COST:

Figure 4-5 Supportability Attributes Report

4.7 LSA TASKS (EARLY STRATEGY REPORT SECTION II)

SELECTED LSA TASK DATA

4.7.1 This report lists all the LSA tasks. It provides management the status of each LSA Task and all the different tasks, titles Action Officer Information, and narrative. Scheduled start or finish dates are not included.

LSA TASKS DATA INCLUDED

4.7.2 When a task contains a Y, narrative must be present. In the case where no text is present the LSA Task will be printed with the statement NO ENTRY. This NO ENTRY statement should alert management to contact the Action Officer to either make entries to their task or change the LSA Task Applicability Field for that task to an "N" on the LSA Task Selection Menu para 3.1.27.

REVIEWING RESULTS

4.7.3 This report should be reviewed by management prior to external distribution in order to ensure all required tasks contain a correct entry.

4.7.4 An example of the report format is presented in Figure 4-6.

REPORT ORGANIZATION

4.7.5 This format will continue for each LSA Task. There will be a page break at the end of each group of tasks within a task series (i.e., all the tasks in the 100 section will be printed and a page break will occur prior to printing the 200 series tasks).

4.8 SAMPLE INDIVIDUAL LSA TASK REPORT

INDIVIDUAL LSA TASK REPORT DATA

4.8.1 This report can be generated for each of the individual LSA Tasks. It contains the Equipment I.D. and Action Officer Information for the individual task followed by the task requirements and selection rationale. It also contains a machine generated report date.

4.8.2 An example of the report is presented in Figure 4-7.

TECHNOLOGICAL OPPORTUNITIES
LSA TASK 204
AS OF:
EQUIPMENT I.D.: 81 MM MORTAR

ACTION OFFICER INFORMATION

NAME: PHONE #:
COMMAND: AUTOVON #:
OFFICE SYMBOL: ESTIMATED COST:

PURPOSE:

REQUIREMENTS:

POTENTIAL DESIGN IMPACT:

COST EFFECTIVENESS:

AVAILABILITY OF DATA:

TIME/COST ESTIMATE:

RESPONSIBLE ACTIVITY:

OTHER:

Figure 4-6 LSA Task Report

TECHNOLOGICAL OPPORTUNITIES
LSA TASK 204
AS OF:
EQUIPMENT I.D.: 81 MM MORTAR

ACTION OFFICER INFORMATION

SCHEDULED START DATE:	SCHEDULED FINISH DATE:
NAME:	PHONE #:
COMMAND:	AUTOVON #:
OFFICE SYMBOL:	ESTIMATED COST:

PURPOSE:

REQUIREMENTS:

POTENTIAL DESIGN IMPACT:

COST EFFECTIVENESS:

AVAILABILITY OF DATA:

TIME/COST ESTIMATE:

RESPONSIBLE ACTIVITY:

OTHER:

Figure 4-7 Individual LSA Task Report

4.9 LSA TASK STATUS REPORT

LSA TASK STATUS INFORMATION

4.9.1 This is to assist management in determining the status of the various LSA tasks selected for the Weapon System/End Item. It contains information for each LSA task such data as:

a. Date Report Generated
b. End Item I.D.
c. LSA Task Number
d. Description of the Task
e. Applicability of the Task (Required = Y, Not Required = N).
f. If entries have been made in the text (Y = Yes, N = No)
g. Action Officer Information

FIRST PART DESCRIPTION

4.9.2 All LSA Tasks will be listed on the report in two parts. Part one has six columns: LSA Task #, Description, App. (Applicability) Code, Text Entries, Schedules Dates - Start and Finish. For tasks with an Applicability Code of Y, the report indicates if text entries were made by placing a Y or N in the field. The Start and Finish date fields will also be completed.

SECOND PART DESCRIPTION

4.9.3 Part two will contain Task Action Officer Information for those tasks that contain a Y in the Applicability Code Field. For those tasks containing an N, the task number will be listed followed by the statement Note Applicable.

4.9.4 An example of this report is presented in Figure 4-8.

LSA TASK STATUS REPORT

EQUIPMENT I.D.: 81MM MORTAR

LSA TASK #	DESCRIPTION	APP CODE	TEXT ENTRIES	SCHEDULED START	DATE FINISH
101	DEVELOPMENT OF AN EARLY LOGISTIC SUPPORT ANALYSIS STRATEGY	Y	Y		
102	LOGISTIC SUPPORT ANALYSIS PLAN	Y	N		

(The Remaining Tasks are listed here)

* * *

TASK	NAME	OFFICE SYMBOL	COMMAND	PHONE	AUTOVON
101	Col Brown	AMC-ZZ	AMC	227-7216	993-7216
102	Maj Price	MER-L	MERSA	768-0019	774-0019

Figure 4-8 LSA Task Status Report

APPENDIX A

SYSTEM REQUIREMENTS

SYSTEM REQUIREMENTS

PC with 640 KB RAM
20 MB Hard Disk
One 360 KB Floppy Drive
EGA Card
Monochrome or Color Monitor

DOS Version 3.3

Printers
- -- Epson
- -- IBM Proprinter
- -- HP Laser Jet
- -- TI Laser Printer
- -- Panasonic

APPENDIX B

LIST OF REFERENCE DOCUMENTS

LIST OF REFERENCE DOCUMENTS

MIL-STD-1388-1A	Logistic Support Analysis
AR 700-127	Integrated Logistics Support
DA PAM 700-55	Instructions for Preparing an ILSP
MRSA PAM 700-11	Cost Estimating Methodology for Logistics Support Analysis
DI-L-7114	LSA Strategy Report
APJ 966-201	Structured Analysis/Design LSA Task 101, Early LSA Strategy
APJ 983-1	COMVAT Early Strategy Report LSA Task 101
APJ 966-690	Executive User's Manual

APPENDIX C

LIST OF REFERENCE FILES

LIST OF REFERENCE FILES

EXECUTIVE FILES

LSA.EXE
LSAOVL.OVL

RCANLYHS.DBF
RCANLYHS.NTX
RCANLYST.DBF
RCANLYST.NTX
RCCXHLP.DBF
RCCXHLP.NTX
RCCXHLP.DBT
RCEQHS.DBF
RCEQHS.NTX
RCEQUIP.NTX
RCEQUIP.DBF
RCLSATSK.DBF
RCLSATSK.NTX
RCMENU.NTX
RCMENU.DBF
RCPRHLP.DBF
RCPRHLP.DBT
RCPRHLP.NTX
RCPRNCOD.CTL
RCPRNCTL.DBF
RCPRNLST.NTX
RCPRNLST.DBF
RCSCR31.TXT
RCSCR41.TXT
RCSESSN.DBF
RCSESSN.NTX
RCSTATUS.NTX
RCSTATUS.DBF
RCWELCOM.MEM
RMDBFILE.DBF
RMDBFILE.NTX
RMTSKTAG.DBF
RMTSKTAG.NTX
RSUMSTAT.DBF
RSUMSTAT.DBT
RSUMSTAT.NTX
RSUMSTHS.DBT
RSUMSTHS.NTX
RSUMSTHS.DBF

LSA TASK 101 FILES

ATT101.DBF
EQUIP101.DBF
EQUIP101.DBT
HELP101.DBF
HELP101.DBT
PT1_101.DBF
PT1_101.DBT
S1NOTE.DBF
S1NOTE.DBT
TASKS101.DBF

APPENDIX D

SAMPLE OUTPUT REPORT FORMATS

EARLY STRATEGY REPORT PART I
AS OF 05/24/91

Equipment ID: COMVAT

A. SYSTEM DESCRIPTION
PROJECT MANAGER INFORMATION

Name: GARY MOSHIER
Command: AMCCOM
Office Symbol: SMCAR-CCS-C
Phone: 1(201) 724-6944
Autovon: 880-6994

PROJECT INFORMATION
Contractor/MIPR #: DAAAA-86-D-0021
Procuring Activity: AMCCOM
LSA Performing Activity: CONTRACTOR
LSA Reporting Activity: LOG DIVISN
Type Acquisition: Full development
Acquisition Process: Traditional
Acquisition Management Application: IPR (In Process Review)
Type of System: Ordnance system
Estimated System Cost: 0

SYSTEM DESCRIPTION

Combat Vehicle Armament Technology (COMVAT) consists of the following subsystems:

-Autogun
-Electrical System
-Linkless Ammuniction Feed System
-Combat Vehicle Integrated System (CVIS) Fire Control Processes
-45mm APFSDS-T Cartridge
-HEI-T Cartridge
-TPDS-T Cartridge
-TP-T Cartridge.

COMVAT will provide a high performance gun system for future combat vehicle applications, which include the Bradley Block III or FIFV. The system will provide superior anti-armor performance, lethality against secondary targets, and survivablility against threat systems. The primary threat target is the Infantry Fighting Vehicle (exemplified by the BMP) -not the currently fielded BMP-1 and BMP-2, but the BMP of the year 2000 and beyond. Secondary threat targets include troops, trucks, ATGM sites, and aircraft.

B. SUPPORTABILITY OBJECTIVES
ACTION OFFICER INFORMATION
Name: Office Symbol:
Command: Phone:
Autovon: Estimated Cost: 0

SUPPORTABILITY OBJECTIVES

NO ENTRY

1. Design Influence
ACTION OFFICER INFORMATION
Name: SCOTT LERMAN Office Symbol: APJ
Command: APJ Phone: 1(201) 945-8203
Autovon: Estimated Cost: 325,000

SUB-ATTRIBUTES

Manprint
ACTION OFFICER INFORMATION
Name: ACTION OFF MANPRINT Office Symbol: AMSMC
Command: AMCCOM Phone: 1(702) 123-4567
Autovon: Estimated Cost: 200,000

Provisions will be included for sensing hang-fire condition with ECU providing protection against indexing, extraction and ejection under such conditions.

Mechanical mechanisms will be incorporated to prohibit incorrectly oriented rounds from being loaded into the feed mechanism.

The operator should be able to perform all operational tasks while dressed in MOPP-IV gear.

Turret design and equipment layout shall consider the anthropometric and physical strength of the target audience personnel. The equipment should be placed in an arrangement that improves human performance.

Energy Efficiency
NOT APPLICABLE

Hazardous Material Usage
NOT APPLICABLE

Life Cycle Costs
NOT APPLICABLE

Human Factors Engineering
NOT APPLICABLE

Safety
ACTION OFFICER INFORMATION

Name: SAFTEY OFFICER
Command: AMCCOM
Autovon:
Office Symbol: AMSMC-
Phone: 1(703) 876-5432
Estimated Cost: 25,000

Operator actuated safety mechanisms will function under all environments. The operator must be able to visually (or otherwise) determine the status.

BITE
NOT APPLICABLE

Source Selection or Weighing
NOT APPLICABLE

Testing Feedback or Corrections
NOT APPLICABLE

Contractor Incentives
NOT APPLICABLE

RAM-Driven Support Costs
NOT APPLICABLE

Preplanned Product Improvement
NOT APPLICABLE

Transportability
NOT APPLICABLE

Facility Limitations
NOT APPLICABLE

Nuclear Hardening Requirements
NOT APPLICABLE

Packaging/Handling Constraints
NOT APPLICABLE

Design for Discard/Testability
ACTION OFFICER INFORMATION

Name: TESTABILTY ENGINEER
Command: AMCCOM
Autovon:
Office Symbol: AMSMC-
Phone: 1(703) 123-4566
Estimated Cost: 100,000

All electronic componants should be designed to place a single function on a card a module. Where possible these components should be held under $500 to make discard economical.

System Readiness Objectives
NOT APPLICABLE

Serial Number Tracking
NOT APPLICABLE

Use of Metric Measurement
NOT APPLICABLE

Embedded Training
NOT APPLICABLE

2. Maintenance Planning
ACTION OFFICER INFORMATION
Name: ENGINEER MAINTENANCE
Command: AMCCOM
Autovon:
Office Symbol: AMSMC-ME
Phone: 1(705) 987-6543
Estimated Cost: 0

SUB-ATTRIBUTES

Maintenance Concept
NOT APPLICABLE

Maintenance Facilities
NOT APPLICABLE

Maintenance Tasks
NOT APPLICABLE

Maintenance Organization
NOT APPLICABLE

Expenditure Limits
NOT APPLICABLE

Maintenance Standards
NOT APPLICABLE

Provisioning Plan
NOT APPLICABLE

Operational Readiness/Repair Cylce Float
NOT APPLICABLE

Contractor Support
NOT APPLICABLE

Depot Maintenance Support
NOT APPLICABLE

3. Manpower and Personnel
ACTION OFFICER INFORMATION
Name:
Command:
Autovon:
Office Symbol:
Phone:
Estimated Cost: 0

SUB-ATTRIBUTES

Numbers, Skills, and Grades
NOT APPLICABLE

Retention Constraints
NOT APPLICABLE

Recruitment or Literacy Requirements
NOT APPLICABLE

Special/Hazardous Skill Requirements
NOT APPLICABLE

Security Clearance Requirements
NOT APPLICABLE

4. Supply Support
ACTION OFFICER INFORMATION
Name: Office Symbol:
Command: Phone:
Autovon: Estimated Cost:0

SUB-ATTRIBUTES

Provisioning/Spare Secondary Items and Repair Parts
NOT APPLICABLE

Sets, Kits, Outfits
NOT APPLICABLE

Catalogging and Related Coding
NOT APPLICABLE

Storage Space
NOT APPLICABLE

Special Storage Requirements
NOT APPLICABLE

Serial Number Tracking
NOT APPLICABLE

POMCUS Stocks and War Reserve
NOT APPLICABLE

5. Packaging, Handling, and Storage
NOT APPLICABLE

6. Support Equipment and TMDE
ACTION OFFICER INFORMATION
Name: Office Symbol:
Command: Phone:
Autovon: Estimated Cost: 0

SUB-ATTRIBUTES

Test,Measurement & Diagnostic Equipment
NOT APPLICABLE

Associated Support Items of Equipment
NOT APPLICABLE

Tools and Tool Kits
NOT APPLICABLE

Test Sets or Test Program Sets
NOT APPLICABLE

7. Training and Training Devices
ACTION OFFICER INFORMATION
Name: NET REPRESENTITVE
Command: AMCCOM
Autovon:
Office Symbol: AMSMC-
Phone: 1(703) 234-5678
Estimated Cost: 850,000

SUB-ATTRIBUTES

Joint Service Training
NOT APPLICABLE

Training Plans
ACTION OFFICER INFORMATION

Name: NET REP
Command: AMCCOM
Autovon:
Office Symbol: AMSMC
Phone: 1(703) 234-5678
Estimated Cost: 350,000

Training Impact - COMVAT trainining programs will be designed to reduce operational tempo and live firing to the extent consistent with unit readiness and provide increased training opportunities at levels unattainable with current programs (BN and above). COMVAT training programs will also provide the capability to train new operational capabilities associated with COMVAT that otherwise may be untrainable (increased weapons range, NLOS, company gunner, etc.)

The Materiel Developer will design, develop and validate initial individual training programs, aids and devices; conduct training of Key Instructors (KI) in operation and maintenance of COMVAT; and develop training materials.

Training Devices and Equipment
ACTION OFFICER INFORMATION

Name: NET REP
Command: AMCCOM
Autovon:
Office Symbol: AMSMC
Phone: 1(703) 234-5678
Estimated Cost: 500,000

Practice Device Requirements - Practice cased telescoped ammunition will be available and will be drawn as needed by units and utilized for field training cf troops in deployment and operation of COMVAT. Unit training in the active component will be based on the optimum use of embedded/plug-in training capabilities in the operational equipment. Unit training in the reserve component will be based on the optimum use of embedded training capabilities and simulations/simulators, supplemented by stand-alone part task trainers. Modification of existing Bradley Training Devices should be considered as an alternative to construction of COMVAT unique devices. That is, trainers that address only one of the COMVAT subsystems such as indicated below for gunnery and for maintenance of the electrical subsystem. Institutional training will be based predominately on the use of stand-alone devices, simulators and simulations (DSS).

8. Technical Data
ACTION OFFICER INFORMATION
Name: Office Symbol:
Command: Phone:
Autovon: Estimated Cost: 0

SUB-ATTRIBUTES

Technical Publications
NOT APPLICABLE

Technical Documentation
NOT APPLICABLE

Test Results
NOT APPLICABLE

Manprint Data
NOT APPLICABLE

Packaging Procedures
NOT APPLICABLE

LSA/ILS Documentation
NOT APPLICABLE

9. Computer Resources Support
ACTION OFFICER INFORMATION
Name: Office Symbol:
Command: Phone:
Autovon: Estimated Cost: 0

SUB-ATTRIBUTES

Computer Resources Management Plan
NOT APPLICABLE

Post Deployment Software Support
NOT APPLICABLE

Software Storage, Security Requirements
NOT APPLICABLE

10. Transportability and Transportation
NOT APPLICABLE

11. Facilities
ACTION OFFICER INFORMATION
Name: Office Symbol:
Command: Phone:
Autovon: Estimated Cost: 0

SUB-ATTRIBUTES

Training Facilities Requirements
NOT APPLICABLE

Depot Maintenance Facilities Requirements
NOT APPLICABLE

Mobile Facilities
NOT APPLICABLE

Testing and Operational Facilities
NOT APPLICABLE

Facility Physical Security
NOT APPLICABLE

Facility Utilities
NOT APPLICABLE

Special Facility Requirements
NOT APPLICABLE

Troop Facilities
NOT APPLICABLE

Training Ranges
NOT APPLICABLE

12. Standardization and Interoperability
ACTION OFFICER INFORMATION
Name: Office Symbol:
Command: Phone:
Autovon: Estimated Cost: 0

SUB-ATTRIBUTES

Standardization Plan
NOT APPLICABLE

Interoperable Systems
NOT APPLICABLE

13. Reliability and Availability
ACTION OFFICER INFORMATION
Name: QA REP
Command: AMCCOM
Autovon:
Office Symbol: AMSMC-
Phone: 1(703) 345-6789
Estimated Cost: 100,000

SUB-ATTRIBUTES

Reliability
NOT APPLICABLE

Maintainability
NOT APPLICABLE

System Readiness Objectives
ACTION OFFICER INFORMATION

Name: QA REP
Command: AMCCOM
Autovon:
Office Symbol: AMSMC-
Phone: 1(703) 345-6789
Estimated Cost: 100,000

The Reliability, Availability and Maintainability (RAM) objective is to design and field a system with the readiness characteristics required to meet mission and functional requireements.

The design goal for the prototype automatic cannon is 5000 mean rounds between failure. The production goal is 20,000 MRBF. The automatic linkless feed systme should achieve a reliability of between 1.5 to 2 times that of the automatic cannon to sustain overall mission reliability. The electronci portions of the system should meet the minimum acceptable value of 1500 mean hours between operational mission failure (MTBOMF) and a Best Operational Capability of 4800 MTBOMF.

Availability: An operational availability of Ao > .90 is required both in peacetime and wartime.

Maintainability: The operational mean time to repair shall be no greater than .25 hours at organizational level, .75 hours at intermediate forward and 2.3 hours at intermediate rear maintenance level.

Testing
NOT APPLICABLE

14. Support Management and Analysis
ACTION OFFICER INFORMATION
Name:
Command:
Autovon:
Office Symbol:
Phone:
Estimated Cost: 0

SUB-ATTRIBUTES

Planning
NOT APPLICABLE

Competition
NOT APPLICABLE

Testing and Evaluation
NOT APPLICABLE

Documentation
NOT APPLICABLE

15. Cost Analysis and Funding
ACTION OFFICER INFORMATION
Name: Office Symbol:
Command: Phone:
Autovon: Estimated Cost: 0

SUB-ATTRIBUTES

Cost & Operational Effectiveness Analysis
NOT APPLICABLE

Baseline Cost Estimating
NOT APPLICABLE

Material Fielding
NOT APPLICABLE

ACQUISITION DATA
AS OF 05/24/91

Equipment ID: COMVAT

PROJECT MANAGER INFORMATION

Name: GARY MOSHIER Office Symbol: SMCAR-CCS-C

Command: AMCCOM Phone: 1(201) 724-6944
Autovon: 880-6994

PROJECT INFORMATION

Contractor/MIPR #: DAAAA-86-D-0021
Procuring Activity: AMCCOM
LSA Performing Activity: CONTRACTOR
LSA Reporting Activity: LOG DIVISN
Type Acquisition: Full development
Acquisition Process: Traditional
Acquisition Management Application: IPR (In Process Review)
Type of System: Ordnance system
Estimated System Cost: 0

SYSTEM DESCRIPTION

Combat Vehicle Armament Technology (COMVAT) consists of the following subsystems:

-Autogun
-Electrical System
-Linkless Ammuniction Feed System
-Combat Vehicle Integrated System (CVIS) Fire Control Processes
-45mm APFSDS-T Cartridge
-HEI-T Cartridge
-TPDS-T Cartridge
-TP-T Cartridge.

COMVAT will provide a high performance gun system for future combat vehicle applications, which include the Bradley Block III or FIFV. The system will provide superior anti-armor performance, lethality against secondary targets, and survivablility against threat systems. The primary threat target is the Infantry Fighting Vehicle (exemplified by the BMP) -not the currently fielded BMP-1 and BMP-2, but the BMP of the year 2000 and beyond. Secondary threat targets include troops, trucks, ATGM sites, and aircraft.

Design Influence
AS OF 05/24/91

Equipment ID: COMVAT

ACTION OFFICER INFORMATION

Scheduled start date: 05/13/91 Scheduled finish date: 05/13/91
Name: SCOTT LERMAN Office Symbol: APJ
Command: APJ Phone: 1(201) 945-8203
Autovon: Estimated Cost: 325,000

SUB-ATTRIBUTES

Manprint
ACTION OFFICER INFORMATION

Scheduled start date: 05/13/91 Scheduled finish date: 05/30/91

Name: ACTION OFF MANPRINT Office Symbol: AMSMC
Command: AMCCOM Phone: 1(702) 123-4567
Autovon: Estimated Cost: 200,000

Provisions will be included for sensing hang-fire condition with ECU providing protection against indexing, extraction and ejection under such conditions.

Mechanical mechanisms will be incorporated to prohibit incorrectly oriented rounds from being loaded into the feed mechanism.

The operator should be able to perform all operational tasks while dressed in MOPP-IV gear.

Turret design and equipment layout shall consider the anthropometric and physical strength of the target audience personnel. The equipment should be placed in an arrangement that improves human performance.

Energy Efficiency
NOT APPLICABLE

Hazardous Material Usage
NOT APPLICABLE

Life Cycle Costs
NOT APPLICABLE

Human Factors Engineering
NOT APPLICABLE

Safety

ACTION OFFICER INFORMATION

Scheduled start date: 05/13/91 Scheduled finish date: 05/30/91

Name: SAFTEY OFFICER
Command: AMCCOM
Autovon:

Office Symbol: AMSMC-
Phone: 1(703) 876-5432
Estimated Cost: 25,000

Operator actuated safety mechanisms will function under all environments. The operator must be able to visually (or otherwise) determine the status.

BITE
NOT APPLICABLE

Source Selection or Weighing
NOT APPLICABLE

Testing Feedback or Corrections
NOT APPLICABLE

Contractor Incentives
NOT APPLICABLE

RAM-Driven Support Costs
NOT APPLICABLE

Preplanned Product Improvement
NOT APPLICABLE

Transportability
NOT APPLICABLE

Facility Limitations
NOT APPLICABLE

Nuclear Hardening Requirements
NOT APPLICABLE

Packaging/Handling Constraints
NOT APPLICABLE

Design for Discard/Testability
ACTION OFFICER INFORMATION

Scheduled start date: 05/13/91 Scheduled finish date: 05/30/91

Name: TESTABILTY ENGINEER
Command: AMCCOM
Autovon:

Office Symbol: AMSMC-
Phone: 1(703) 123-4566
Estimated Cost: 100,000

All electronic componants should be designed to place a single function on a card a module. Where possible these components should be held under $500 to make discard economical.

System Readiness Objectives
NOT APPLICABLE

Serial Number Tracking
NOT APPLICABLE

Use of Metric Measurement
NOT APPLICABLE

Embedded Training
NOT APPLICABLE

Logistic Support Analysis Plan
LSA TASK 102
AS OF 05/24/91

Equipment ID: COMVAT

ACTION OFFICER INFORMATION

Scheduled start date: 05/13/91 Scheduled finish date: 05/30/91
Name: ILS MANAGER Phone: 1(999) 999-999
Command: PEO Autovon:
Office Symbol: PEO-FIFV Estimated Cost: 3,000

PURPOSE:

To develop a Logistic Support Analysis Plan (LSAP) which identifies and integrates all LSA tasks, identifies management responsibilities and activities, and outlines the approach toward accomplishing analysis tasks.

REQUIREMENTS:

The LSA Plan will provide a detailed approach to how LSA is performed for COMVAT and its subsystems. It will identify the tasks deemed appropriate and cost effective for the COMVAT Program and the applicable Life Cycle Phase. The level of detail specified for the tasks will depend on the life cycle phase and the amount of design information available. During the early phases, the tasks selected should require as much detailed analysis as possible in order to ensure that Logistics Requirements become part of the design.

(more follows this is just a sample)

POTENTIAL DESIGN IMPACT:

The LSA Plan will contain procedures for identifying and correcting design deficiencies found duirng the LSA and testing processes. The desing deficiencies identified through LSA should focus on improving system operations and support. Corrective actions procedures must include incorporation of the design requirements in the system specification and test procedures.

A member of the LSA team should be designated to track and provide status of all design deficiencies. This information should be included on the automated LSA system and as agenda items during Logistic Reviews.

COST EFFECTIVENESS:

For a small cost in manpower, the LSA Plan provides the basic tool for establishing and executing an effective LSA program by providing input ot the COMVAT hardware and software system and subsystems as their designs are developed. Costly revisions are avoided and cost-effective supportability is built into the designs to prevent costly support to an existing end item.

The Logistics Planning and Requirements Simplification System (LOGPARS) shold be used to the maximum extent possible in preparing the LSA Plan. LOGPARS offers an Integrated Logistic Support Plan advisor which can be used to assist in LSAP development. LSA Task Schedules can be accomplished using the scheduling advisor portions of LOGPARS.

AVAILABILITY OF DATA:

During the Concept Phase of the COMVAT development, the LSA Plan will be based on the Requirements Document, O&O Plan, System MANPRINT Managment Plan (SMMP) and preliminary design plans. The LSA Plan will be a dynamic document that reflects current program status and planned actions. Program schedule changes, results of tests conducted dring the 6.2 phase, including TTI, and LSA task results, will be used to update the plan at regular intervals.

TIME/COST ESTIMATE:

LSA SUBTASKS	CONCEPT	DEMVAL	FSD	PROD	TOTAL	($) COST
102.2.1	200	180			380	18,240
102.2.2		78	74	52	204	9,792
TOTALS	200	258	74	52	584	28,032
COSTS ($)	9,600	12,384	3,552	2,496	28,032	

RESPONSIBLE ACTIVITY:

The subtasks of Task 102 will be performed by the ILS Manager, in close coordination with all other members of the ILS Team, including the COMVAT System Manager, Maintenance Engineering, Infantry Center and School, Logistics Center, Human Factors Engineering and Safety Engineering.

OTHER:

NO ENTRY

APPENDIX E

ILS ELEMENT/SUBELEMENT DESCRIPTIONS

DESIGN INFLUENCE

The following Sub-Attributes (ILS Sub-elements) are defined for this Attribute (ILS Element).

Manprint - New technologies may be highly influenced by MANPRINT requirements, whereas in a NDI Acquisition, little or no MANPRINT involvement is possible.

Energy Efficiency - Specify the parameters, if any, for fuels, energy consumption reduction goals, energy conversion/ storage criteria, etc. An electronic system, e.g., may be required to operate on solar power at 1/4th the operating power of the replaced system, and at the same time, require the storage of excess generated power for nighttime operation.

Hazardous Materials Usage - Specify what, if any, hazardous materials will be required in the manufacture, testing, operation, maintenance or disposal of the system/item. How can the design be influenced to reduce or eliminate the hazards?

Life Cycle Costs - Identify target LCC. Provide cost breakdown. Identify inclusion of design to cost criterion, if specified, and Cost and Operational Effectiveness Analysis (COEA).

Human Factors Engineering - Identify areas within the design operation or performance envelope of the system that may involve human performance/ tolerance, i.e., excessive noise, smell, vibration, closeness of quarters, sustained physical positioning or performance. Specify design parameters.

Safety - Identify design requirements that incorporate safety and health hazard parameters, identified in man-machine-environment interface considerations. Includes protection from fires, contamination, noise, recoil, concussion, whiplash, material failures, etc.

BITE - Specify desirable built-in diagnostic, prognostic and self-help characteristics considered appropriate to assist in the reduction of operating and supporting/sustaining costs.

Source Selection or Weighing - Enter information considered critical to these processes that pertain to design influence, such as, emphasis on commonality of components or use of existing componentry to reduce or defer inventory and data cost increases. If data is not available from the PM files, the Material Developer must provide it.

Testing Feedback or Corrections - Is data feedback necessary as design/testing faults occur to minimize production line or troop use impacts? Are they included in hardware/data requirements contracts? It is possible that testing feedback corrections may impact on virtually any area of design and ILS/LSA.

Contractor Incentives - Have incentives been included in the Acquisition Strategy hardware contract to effect lower design costs, support costs and RAM performance? Have penalties been specified for non-performance? Obtain from Contract as necessary. Establish incentives and or penalties where allowable by acquisition strategy.

RAM-Driven Support Costs - The objective is to reduce support costs. Look at similar systems; see if there are areas where new system design can be influenced, (i.e., through the use of modularized componentry, reduction of skill levels in operation and/or maintenance tasks). Consider requirements for new technology materials to make items throw-away after long use rather than repair. Specify objectives and if possible, how to achieve them or consider comparable item/equipment study.

Preplanned Product Improvement - If this system "Type Acquisition" is "Preplanned Product Improvement", then indicate any or all types of items/equipment that are capable of being modified to satisfy this system acquisition requirement. Specify types of modifications required and estimated costs for parts/materials and installation.

Transportability - Specify any known transportation/ transportability requirements. Are there any known constraints on weight, width or height dimensions, special handling or shipping mode? Also, specify any customs or Panama Canal requirements, or special precautions, as well as any containerization requirements, if known. Identify airdrop or helicopter requirements.

Facility Limitations - Identify any existing facilities limitations as they presently exist for like items, e.g., ranges, harbors, runways, hangar space, storage, training and maintenance facilities, clean room and special security facilities. If design can't be impacted by such considerations, then as a minimum, further shortfalls must be identified for inclusion in the Military Construction-Army Budget.

Nuclear Hardening Requirements - Specify needs, if any, for item/equipment to be designed with chemical, biological, and nuclear operations survivability. Identify whether washdown/decontamination and use of MOPP suits are required. Specify if electro-magnetic impulse and/or high altitude electro-magnetic pulse hardening is essential to the design. Ref. ARs 70-60, 40-10, 40-5 and MIL-STD-461 and 462.

Packaging/Handling Constraints - Indicate if the item is so large that it can be handled only by special cranes. Does the item contain hazardous materials? Is it subject to theft? Can the item be damaged by extreme temperatures or by other environmental factors? Apply the same considerations to spare parts packaging, End Item System preparation for shipment, and containerization.

Design for Discard/Testability - In the interest of reducing operational and sustainability costs, can the item be made simply from inexpensive materials for throwaway after use? If not, is the item complex enough to require the design to incorporate built-in test equipment, or go/no-go indicators.

System Readiness Objective - Standard Army policy requires design to achieve 95% or greater Operational Readiness. When high cost/high technology prohibits obtaining this degree of availability, waivers must be requested of the Department of the Army's Deputy Chief of Staff for Operations, identifying all suitable logic for requesting waivers. Reference AR 700-138.

Serial Number Tracking - Does the cost, criticality or end item status warrant design and/or attachment of data plates for S/N tracking? Should a waiver for such tracking be requested due to high administrative reporting costs? Specify permanent method of identifying parts and components part numbers that are required to be replaced due to essentially, criticality, safety, anticipated fatigue life, etc. Obtain from project engineer and experience. Ref. DODI 4140.54.

Use of Metric Measurement - Determine if the use of metric measurement is desirable. Will it enhance the interoperability, interchangeability, and use by Allies? Determine if there are operative standardization agreements applicable to this item. AR 700-1.

Embedded Training - Specify if the system is complex, multi-system integrated, or so susceptible to change that it is economical/desirable to consider the use of embedded training in the item/equipment design.

MAINTENANCE PLANNING

The following Sub-Attributes (ILS Sub-elements) are defined for this Attribute (ILS Element).

Maintenance Concept - The establishment of the maintenance concept is a very difficult and vital step in determining logistics support needs. Due to the highly complex nature of some newly developed items, it may be necessary to establish an interim and then a final maintenance concept. When technological break-throughs are expected or encountered, a concept of total interim contractor support may be desirable until organic skills, facilities, etc., become available. In other cases involving less complex items, the maintenance concept desired or required is straightforward and directly capable of implementation. Establish the desired Echelons of Maintenance. AR 750-1.

Maintenance Facilities - Determine if existing fixed and/or mobile facilities are adequate. Specify if a facilities study or facilities master plan development is required. Identify if it is necessary to establish, modify or augment maintenance facilities. If new or updates to existing facilities are required, make the user commands aware of their facility planning and budgeting needs. AR 750-1.

Maintenance Tasks - Define maintenance task assignment categorically by echelon of maintenance for subsequent development of (P)MAC, tools, skills, manuals, spares, etc. (i.e., go/no-go test and component replacement by using unit; intermediate level maintenance to perform diagnostic testing and repair as necessary, overhaul or rebuild to be evacuated to echelons-above-corps (depot)). AR 750-1.

Maintenance Organizations - Determine the specific maintenance organizations required (by TOE designation). Are increases in manpower or other changes to existing TDA/TOE's required? Can existing organizations accomplish increase a work-load? Should present physical site be changed from fixed to mobile status? Specify all such changes required in as much depth as possible. AR 750-1

Expenditure Limits - Identify any such limits applicable to this item/equipment. If there are limits, but no repair experience and or costs exist, then develop as a factor of cost based on like items. AR 750-1, TB55 Series.

Maintenance Standards - Are relative standards available upon which maintenance productivity can be measured? If so, use them. If not available and proven for this system, consider the use of a like systems standards (elements) as a point of departure for subsequently developing system unique standards. The principal purpose behind such standards is to highlight deficiencies in training, inadequacies in tools, manuals, etc. that occur over time, not just as a time measurement tool. AR 750-34.

Provisioning Plan - Is a provisioning plan/concept available? If it requires a lengthy (2-3 year) process, have provisions been included in the contract for some form of interim contractor or commercial support until parts and data are available for organic support? When developing a provisioning plan, be sure it integrates the provisioning plans of all subsystem supporting organizations. MIL-STD-1388-2A.

Operational Readiness/Repair Cycle Float - Assure that quantities have been calculated using realistic estimates to support Operational Readiness goals. Have funds been provided to acquire such quantities? If not, waivers must be requested to achieve less than standard operational readiness rate goals. AR 710-1. Calculation must initially be based on RAM goals and adjusted during the development cycle to actual data.

Contractor Support - Determine if a cost and performance study should be conducted to determine feasibility of contractor support maintenance on a short or long term basis. For low density, support items and commercial type items, contractor support may provide an acceptable, cost effective alternative to placing an additional burden on organic resources. F.A.R. & AFARS.

Depot Maintenance Support - It is essential early in Maintenance Planning that overhaul or rebuild at fixed facilities be identified. If overhaul or rebuild is planned, the workload must be assessed by a Department of Defense board and assigned to organic Army or Interservice Support locations. Essential to the board's determinations is a facilities' needs plan, a list of Depot Maintenance Production Equipment required, and lists of all special and common tools, test equipment and special skills requirements. In some instances, battlefield/accident damage can only be repaired at such facilities or by prime contractors due to the need for use of manufacturing/production type jigs and/or fixtures. Determination/computation of depot maintenance overhaul or rebuild requirements by item inventory managers is a key driver and an early-on requirement. AR 750-1, AR 710-1.

MAINTENANCE PLANNING CONSIDERATIONS

(The following elements and regulations should be considered when completing this process)

Maintenance planning begins early in the acquisition process with the development of the maintenance concept. It is conducted to evolve and establish requirements and tasks to be accomplished for achieving, restoring and maintaining the operational capability for the life of the material system. Maintenance planning relies heavily on the Reliability Centered Maintenance (RCM) precept that establishes maintenance tasks based on design reliability and LSA. Maintenance planning will:

a Define the actions and support necessary to ensure that the system attains the specified System Requirements Objectives within minimum Life Cycle Costs.

b. Set up specific criteria for repair in terms of time and accuracy, and repair levels; battlefield damage assessment and repair (BDAR); Built In Test Equipment (BITE); testability, reliability, and maintainability; nuclear hardening; support equipment requirements (including automatic test equipment); and manpower skills and facility requirements for peacetime and wartime environments.

c. State specific maintenance tasks to be performed on the material system.

d. State any interservice maintenance requirements, proposed organic and contractor mix, projected workloads, and time phasing for accomplishing depot maintenance requirements.

e. State the extent, duration, and use of interim contractor support (when applicable) and plans for transition to organic support.

f. Define actions and support required for material fielding.

g. Address warranty considerations. (See AR 700-139)

h. Define host nation support requirements.

i. Determine potential of Battle Damage Assessment Repair for field maintenance.

j. Ensure MANPRINT considerations are included in emerging maintenance concepts and development. The maintenance concept must ensure prudent use of manpower and resources. Performance of maintenance tasks must not exceed available or achievable soldier capabilities. Skill level relationships must be optimized. When formulating the maintenance concept, analysis of the proposed work environment on the health and safety of maintenance personnel must be considered.

MANPOWER AND PERSONNEL

The following Sub-Attributes (ILS Sub-elements) are defined for this Attribute (ILS Element).

Equipment ID: Machine Generated.

Numbers, Skills and Grades - Consideration must be given not only to numbers, skills and grades but also the integration and possible cross fertilization of certain skills, (i.e., in a complex weapon system utilizing electronic, armament, communication and navigation system equipments in an integrated system, there may be a need to cross fertilize knowledge/skills or possibly even create a systems integration specialist). AR 71-2, AR 611-201.

Retention Constraints - Will the system design, deployment or use constitute constraints on normal soldier/family relationships that may affect soldier retention? Will task assignments be so boring or so demanding that the retention rate will drop? Has proper consideration been given to promotion progression capabilities? Specify constraints. AR 570-4, AR 570-5, AR 602-2.

Recruitment or Literacy Requirements - Does the system operation and maintenance require special recruitment criteria? Is the system so unavoidably complex technically and theoretically that special education/literacy requirements must be established? If so, identify such special considerations. TRADOC Regs 350-7, 350-17 and 351-1.

Special/Hazardous Skill Requirements - While all possible effort is expended during the design phase to eliminate such requirements, it is not always possible to do so, (i.e., cargo ships utilize cranes; Nuclear reactors feed on radioactive fuel). Review the special characteristics of the system (if any) and forward to supporting human factors laboratories for study and recommendations. AR 40-10, AR 680-29.

Security Clearance Requirements - Will the system fabrication/manufacturing, operation and/or maintenance require security clearance of secret, top secret, cryptographic or higher? If so, advise FORSCOM, Training and Doctrine Command as well as DCSOPC and Army Intelligence Agency for timely screening of system associated Military, Civilian and Contractor personnel as necessary. AR 380-5, AR 380-67, DODD 5220.22M.

MANPOWER AND PERSONNEL CONSIDERATIONS

The following elements should be considered when completing this process.

This element involves the identification and acquisition of military and civilian personnel with skills and grades required to operate and maintain a material system over its life at peacetime and wartime rates. Manpower requirements are developed and personnel assignments are made to meet mission support demands throughout the life cycle of the material system. Manpower requirements are based on related ILS elements and MANPRINT considerations. Human Factors Engineering or behavioral research will be applied to ensure optimum soldier-machine interface. They are predicated on accomplishing the logistics support mission in the most efficient and economical way. This element includes requirements during the planning and decision process to optimize:

a. Numbers, skills, and grades.

b. Soldier-machine interface.

c. Special skills.

d. Security clearance.

e. Human factors considerations during the planning and decision process.

SUPPLY SUPPORT

The following Sub-Attributes (ILS Sub-elements) are defined for this Attribute (ILS Element).

Equipment ID: Machine generated.

Provisioning/Spare Secondary Items & Repair Parts - Have budgets (ASF, PEMA, OPA etc.) been computed using Selected Essential Item Stockage for Availability Method Model (SESAME) process? If not, assure that computational logic is sound and acceptable to Secretary of the Army, Research, Development and Acquisition (SARDA) personnel (informally) so as to forestall budgetary justification delays. Be sure to identify any deviations to SESAME as well as data base (like systems/items) used in the process. AR 700-18.

Sets, Kits, Outfits - When there are known requirements, have requirements been forecasted for organic workloading to the Depot Systems Command (DESCOM)? Have requirements been included in the OMA/ASF budgets? Identify potential show stoppers regarding parts availability in such lists/requirements. AR 710-1.

Cataloging and Related Coding - Establish a cataloging plan in conjunction with the data and drawings schedule from the provisioning plan. This is needed to assure timely SMR (Source, Maintenance and Recoverability) and IMC (Item Management Coding) coding, DLSC screening and assignment of National Stock Numbers as coding dictates. Failure to accomplish this on schedule can delay fielding of the item/equipment. AR 708-1, AMCR 708-2.

Storage Space - Physical dimension data for end items, spare and repair parts must be provided to the DEPOT Systems Command (DESCOM) and to user commands for inclusion of additional requirements in MCA or OMA budgets. Assure that storage and assembly area requirements have been identified to DESCOM and user commands for new/displaced equipment fielding items and/or systems. AR 70-1, DA PAM 700-55, AMCR 7002-23.

Special Storage Requirements - Have designated storage locations been advised of special equipment, precautions or security needed? Explosive, toxic, chemical, radioactive, or items that can be damaged by humidity, salt air, heat or cold must be considered as needing special precautions. * AR 70-1, DA PAM 700-55, AMCR 702-23.

Serial Number Tracking - Assure that needs for serial number tracking requirements have been identified. From both item/equipment and method of tracking basis, ILS plans must include special procedures for user and intermediate level (Transportation system) tracking. All necessary regulations, forms, equipment and computers must be in place. AR 710-1.

POMCUS Stocks & War Reserve - Compute requirements, formulate budgets, and assess impacts of identified shortages. A review of multiple conflict scenarios is necessary to become capable of assessing shortfall impacts. AR 11-11, AR 710-1, DA PAM 700-55.

SUPPLY SUPPORT CONSIDERATIONS

The following elements should be considered when completing this process.

Identify system supportability objectives for the new system equipment based on new technology and improvements over existing systems.

a. Identify existing system/equipments that are comparable to the new system equipment.

b. Review test results, sample data collection results, logistic documentation, and field deficiency reports. Identify supportability problems resulting from system design or the existing support concepts.

c. Categorize the supportability problems by ILS Element or sub-element.

d. Review the supportability problems to determine how they can be eliminated in the new system equipment design or support concept.

PACKAGING, HANDLING AND STORAGE (PHS)

The following Sub-Attributes (ILS Sub-elements) are defined for this Attribute (ILS Element).

Equipment ID: Machine generated.

Handling Equipment - Due to the size, weight or nature of the item/equipment, indicate if it is necessary to purchase or provide special handling equipment (i.e., heavy haulers, slings, modified forklifts, storage racks etc.). Identify any handling constraints that are required to be overcome. AR 700-15.

Security Requirements - Pertains to physical security of the item/equipment while in storage, to include repair parts, inert materials, manuals, etc. Identify safes, vaults, double locked steel doors or other special containment devices required to assure security from theft, pilferage, contamination, etc. Ensure that special requirements are included in the ILSP for the depot support plans and budgets. AR 380-5, AR 380-67, DOD 5220.22M.

Disposal/Demilitarization - Determine if the physical nature of the item/equipment requires demilitarization of the item before disposal, i.e., artillery, machine guns, tanks, ammo. Note special disposal procedures required to preclude environmental contamination, such as with chemical or radioactive items. Identify if the item technology is such that the item or components thereto (such as circuit boards from electronic or missile systems) must be destroyed through controlled actions to preclude transfer of technology to enemy hands. DOD 4162.21-M-1, AR 380-10.

Physical Dimensions - As soon as it is known, provide weight, height, cubic dimensions, pounds per square inch loading and like data for inclusion in user, TRADOC and DESCOM plans. Data is essential for planning timely storage space, hardstand, container, container space and pallet requirements. AR 700-15.

Packaging and Preservation - Indicate when item/equipment requires special preservation and packaging to prevent corrosion, contamination, mildew, mold, rot or other types of damage due to the need for long term storage (i.e., War Reserves or Operational Stocks). Specify when normal military storage and handling preclude use of commercial packaging. AR 700-15.

Storage Space - Consider needs for special storage containers, shelters or trailers for high dollar reparable items at depot, user and intermediate maintenance activities. Maintenance costs can increase considerably due to lack of proper storage measures.

Decontamination Equipment - Determine if decontamination equipment is required at the User/Intermediate/Depot storage site for protection in case of attack or protection of the environment. Identify special procedure or precautions in case of accident or attack. AR 40-10.

Special Precautions - Address special precautions in the preservation, packaging, handling or storage of the item, necessary for the safety of personnel and facilities due to the nature of the item or related equipment and supplies (i.e., Nuclear, radiological, chemical or bacterial). Jet fuel may grow bacteria in storage. Batteries may explode if not properly handled during charging. Assure that needed precautions or procedures are included in technical data requirements.

PHS CONSIDERATIONS

The following elements should be considered when completing this process:

This element includes resources and procedures to ensure that all system equipment and support items are preserved, packaged, packed, handled and stored properly for short and long-term requirements. It also includes material handling equipment and packaging, handling and storage (PHS) requirements for prepositioning of material configured to unit sets (POMCUS) stocks. It also includes preservation and packaging level requirements and storage requirements (for example, classified, sensitive, and controlled). ILS planning must consider:

a. System constraints (such as design specifications, item configuration, and safety precautions for hazardous material).

b. Special security requirements applicable to ammunition and sensitive material.

c. Geographic and environmental restrictions.

d. Special handling equipment and procedures.

e. Impact on spare or repair parts and Basic Issue Items (BII) storage requirements.

f. Emerging PHS technologies and resource-intensive PHS procedures.

g. **MANPRINT requirements and constraints.**

SUPPORT EQUIPMENT AND TMDE

The following Sub-Attributes (ILS Sub-elements) are defined for this Attribute (ILS Element).

Equipment ID: Machine generated.

Test, Measurement and Diagnostic Equipment - Virtually every system has a requirement for some TMDE. TMDE can range from simple go/no-go gauges to automatic and built-in test equipment. All such equipment requires calibration or verification that it is still within the specified ranges of performance to allow it to perform as intended. Develop and maintain a complete list of TMDE and corresponding calibration instructions. Assure that the designer/manufacturer of the acquisition item/equipment utilizes the TMDE Register (AR 750-43) and Preferred Items List (DA-PAM 700-20-1) to preclude the procurement of available TMDE and associated technical data, where possible. Consider BITE in place of special TMDE for low density, high reliability requirement systems.

Associated Support Items of Equipment - Describe the need for Auxiliary Power/Hydraulic Units, Electric Generators, Cranes, Light Sets, POL or ammo carriers, recovery or evacuation equipment, forklifts, bull dozers, etc. Determine if the equipment is in existing units and available for use. Must the equipment be modified or is it usable as is? Specify new equipment required. Assure the Basis Of Issue Plan (BOIP) feeder data (AR 72-1) has been completed.

Tools & Tool kits - Assure that special care is taken to provide for high technology items special and common tools to satisfy maintenance requirements. Under a streamlined acquisition policy, it is essential that tools and tool sets be evaluated with first article delivery. If evaluation is postponed until OTE, inadequate support items may already be in place. AR 71-2.

Test Sets or Test Program Sets - It is sometimes necessary to provide the prime contractor with Government-Furnished Equipment (GFE) test sets to assure the proper functioning of junction boxes, wiring harnesses, switches, etc., prior to system acceptance by the Government. Such test sets may also be needed to measure allowable Electro-Magnetic interference, power drains etc. Assure that the test set item manager is aware of Test and Evaluation Master Plan (TEMP) schedule requirements for the system being procured. A Test Program Set (TPS) may consist of an Interconnection Device (ICD) Test Program (Software), and

Technical Manuals. In this latter case, the TPS may be required to be purchased through the contractor or government furnished as the situation dictates.

SUPPORT EQUIPEMENT AND TMDE CONSIDERATIONS

The following elements should be considered when completing this process:

This element includes all equipment (mobile and fixed) required to perform the support functions, except that which is an integral part of the material system. Support equipment categories include:

a. Handling and maintenance equipment.

b. Tools.

c. Meteorology.

d. Calibration equipment.

e. Test equipment.

f. Automatic test equipment

g. Support equipment for on and off-equipment maintenance.

Unique test equipment must also include equipment used for testing, maintaining, and supporting the end items during manufacturing and testing that can be reclassified and delivered as depot maintenance plant equipment. This element also encompasses planning and acquisition of logistic support for these equipments. MANPRINT-related design, acquisition and employment constraints, and environmental considerations must influence support equipment design and selection.

TRAINING AND TRAINING DEVICES

The following Sub-Attributes (ILS Sub-elements) are defined for this Attribute (ILS Element).

Equipment ID: Machine generated.

Joint Service Training - Determine if training on this or similar equipment is being conducted at the facilities of another service. Assess cost effectiveness of using another service's training base for Army training. Determine the necessity for the Army to be the proponent for training other service members under a joint service training agreement. TRADOC-PAM 350-3.

Training Plans - Analyze plans to assure they have been developed and coordinated, and that they will accomplish required factory training, instructor, key personnel and system target audience training. Assure that training plans address skill levels, skill specialties and skill qualification testing. Ensure that issues of resident and extension course training lesson plans, instructions and materials have been resolved. Determine if training plans provide special consideration for reserve force personnel time constraints. AR 350-38, AR 611-201.

Training Devices and Equipment - Determine if systems/items/equipment are designated for the training base. Determine how they will be supported. Identify special training devices and/or simulators required as a cost effective means of conducting training. Specify how they will be supported. In both instances, affirm support cost responsibilities by command. Identify depot training/training devices required if the system has depot level reparables. Describe Soldier or Field Manuals required to provide a more comprehensive and cohesive insight to the field integration and use of the system.

TRAINING AND TRAINING DEVICES CONSIDERATIONS

The following elements should be considered when completing this process:

Training and training devices encompasses the processes, procedures, techniques, devices, and equipment used to train civilian and military personnel to operate and support a material system. This element defines qualitative and quantitative requirements for training of operating and support personnel, throughout the life cycle of the system. It includes requirements for:

a. Factory training.

b. Instructor and key personnel training.

c. New equipment training team.

d. Resident training.

The design, development, delivery, installation and logistic support of required training devices (such as mockups, simulators, and training aids), sustainment training at the gaining installations, and joint service training agreement needs are also included.

MANPRINT must be considered to describe and assess the feasibility of human performance requirements; assess the training burden associated with competing material designs; develop an effective training program; and design training devices that effectively replicate the end item and minimize the training burden.

TECHNICAL DATA

The following Sub-Attributes (ILS Sub-elements) are defined for this Attribute (ILS Element).

Technical Publications - Considerations of publications requirements can be highly complex and are worthy of cost analysis. Factors to be considered are system density, commercial supportability, system/item essentiality and cost, when determining whether to require delivery of full scale DA technical manuals or DA authenticated commercial manuals at considerably less cost.

Evaluate the need for technical bulletins, lubrication orders, supply bulletins, Repair Parts and Special Tools Lists (RPSTLs), interim support/repair parts lists, MAC charts, transportability manuals and needs for Depot Maintenance Work Requirements. Consideration must also be given to use of other services documentation and if available, publication and use as Joint Services Manuals, Bulletins, etc. Determine method of updating, i.e., prime contractor, Government, subcontractors. Determine if the Government will verify and validate publications. Plan for updates after TECOM TEST/USERS TEST and again after the production run and first article test is completed. AR 70-37.

Technical Documentation - Due to high cost, weigh essentiality of level of documentation required to provide follow on logistical support (e.g., drawings and specifications). If level of support data is questionable, can Level 1 or Level 2 drawings be acceptable for NDI, or must Level 3 drawings be obtained for organic maintenance/manufacture of material? When working in new technologies, determine if the manufacturers process specifications must be obtained. Level 3 drawings may be of little value without accompanying Process Specs. Is equipment so complex that special test, calibration or systems integration specifications and procedures are also necessary? Determine method of update, verification and validation. Plan for updates after the production run is completed. AR 70-37.

Test Results - Determine if a Test and Evaluation Master Plan (TEMP) was developed and deliverables included in the item contract Data Item Descriptions (DID's). The Material Developer is responsible for paying for material technical testing, test evaluation and associated Temporary Duty (TDY) costs. Assure that the budget contains adequate provisions for this. AR 70-10 and DA-PAM 70-21, AR 71-3.

MANPRINT Data - Assure that the contract includes consideration of requirements for data to support the MANPRINT Data Base. ARs 602-1, 602-2.

Packaging Procedures - Due to nature of the item, special consideration may be required to acquire special packaging procedures and lists of materials; to assure safe handling, adequate storage, transportation protection, and/or environmental protection. AR 700-15, AR 70-37.

LSA/ILS Documentation - Assure that budget and contract deliverables are considered for LSAR and ILS Planning documentation. Also include any possible software (ADP) deliverables (programs documentation) appropriate to the item being acquired. Ensure that engineering changes are controlled and integrated into the technical data packages. Plan for LSAR control and updates after the production run for breakout and competition purposes. AR 70-1, AR 70-37, AR 700-127, MIL-STD-1388-1A and 1388-2A.

TECHNICAL DATA CONSIDERATIONS

The following elements should be considered when computing this process:

This element consists of scientific or technical information necessary to translate material system requirements into discrete engineering and logistic support documentation. Technical data includes:

a. Technical and supply bulletins

b. Maintenance expenditure limits and calibration procedures.

c. Transportability guidance technical manuals.

d. Repair parts and special tools list.

e. Maintenance allocation charts.

f. Lubrication orders.

g. Drawings/specifications/technical data package (TDP).

h. Software documentation.

i. Provisioning documentation

j. Depot maintenance work requirements.

k. Identification lists.

l. Component lists.

m. Logistics Support Analysis Record.

It includes data derived from basic and applied research in MANPRINT-related areas, such as Human Factor Engineering, soldier-machine interface, and psychophysiology. MANPRINT data must be considered in establishing ILS-related design requirements and identifying ILS resource requirements. It is also applied in developing technical manuals and other publications to ensure they conform to established user capabilities.

COMPUTER RESOURCES SUPPORT (CRS)

The following Sub-Attributes (ILS Sub-elements) are defined for this Attribute (ILS Element).

Equipment ID: Machine Generated.

Computer Resources Management Plan - Based on the nature of the item/equipment, determine the need for a CRMP. Assure that the plan includes both system and automatic test equipment operational software, documentation, equipment and training deliverables, and associated schedules. Incorporate MANPRINT requirements. AMCR 70-16.

Post Deployment Software Support - Assure PDSS government/contractor support structure is planned and executed. Strategy must allow for expansion, product improvement and the test verification process.

Software Storage, Security Requirements - Identify storage serviceability standard, if published. Identify any special care required, such as humidity control, static free and grounding requirements. Specify constraints for equipment as well as software. AMCR 702-23.

COMPUTER RESOURCES SUPPORT (CRS) CONSIDERATIONS

The following elements should be considered when completing this process:

Computer resources support includes the facilities, hardware, software, documentation, manpower, and personnel needed to operate and support computer systems. Computer resources include both stand alone and embedded systems. This element is usually planned, developed, implemented, and monitored by a computer resources working group that documents the approach and tracks progress via a Computer Resources Management Plan (CRMP). Combat and material developers will ensure that planning actions and strategies contained in the ILSP and CRMP are complementary, and that computer resources support (material system operational software, Automatic Test Equipment (ATE) operational software, and Post Deployment Software Support (PDDS)) are available where and when needed.

Consider MANPRINT to ease hardware and maintenance burden while balancing software support requirements. MANPRINT consideration should be applied to ensure imbedded diagnostic or prognostic devices, and stand-alone computer resource requirements do not exceed available or achievable manpower resources and personnel capabilities.

TRANSPORTABILITY AND TRANSPORTATION

The following Sub-Attributes (ILS Sub-elements) are defined for this Attribute (ILS Element).

Deployment Requirements - Specify tactical and strategic deployment needs. Identify restrictions or limitations regarding transportation mode. Determine design versus cost tradeoffs in order to attain maximum economical T&T advantages. Submit transportability request. AR 70-47.

Test Requirements - Define T&T test requirements for inclusion in the Test and Evaluation Master Plan. Assure coordination of the TEMP with MTMC-OTEA, Ft. Eustis, VA.. All weight, cubic, dimensional and center line/balance data must be available for the T&T test/study to commence.

Special Instruction/Guidance - Determine need for guidance technical manuals, joint service manuals or special care instructions for use during repair and movement. Describe any special loading or unloading configuration layouts (i.e., first priority items are last items loaded to be first items out/off).

TRANSPORTABILITY AND TRANSPORTATION CONSIDERATION

The following elements should be considered when completing this process:

a. Rail, highway, water, and airweight and dimensional limits.

b. Width and height constraints.

c. Customs requirements.

d. Airdrop and helicopter requirements.

e. Transportation configuration preparation/loading requirements.

f. Special precautions.

g. Transportability report/approval.

h. Unit mobility impacts.

j. Container compatibility

k. Lifting/tie-down provisions.

l. Mobile maintenance and supply van configuration.

m. TMDE and special tools transport requirements.

n. Support equipment transport requirements.

o. Testing.

FACILITIES

The following Sub-Attributes (ILS Sub-elements) are defined for this Attribute (ILS Element).

Training Facilities Requirements - Depending on the sophistication of the item/equipment being acquired, training facilities may range from a room and equipment for video tape viewing to complex facilities for missile launching, flight training, ranges, tracks and ports for ships training. If new facilities are indicated, the Military Construction-Army process requires a minimum of 5 years to fund them. It is absolutely essential that facilities engineers are kept abreast of system/item/equipment design development. Feedback to the PM on status of facilities requirements is also essential. If organic training will not be ready prior to fielding, the PM must have been in a budget and contracting position in sufficient time to have contractor training available. The facilities engineer and the training staff specifying training aids/devices, Associated Items of Equipment (ASIOE) and curriculum must remain coordinated.

A few of the specific areas requiring special review for applicability for change are: electrical power, inlet and exhaust air/gasses, concrete imbedded platforms & stands, computer installations, emergency power supply, electromagnetic interference, equipment cooling/coolant, noise dampening, heating, cooling and humidity control. ARs 70-1, 700-127, 37-100-Fy, MIL-STD-1472.

Depot Maintenance Facilities Requirements - Consider needs for dynamometer, load stand and special machine or tooling installation. Determine needs for whirl towers, engine test cells, bore scoping, stress testing and analysis facilities. Also specify special facility needs for rail, ship, air or truck on post terminals or facilities needed to interface with commercial carriers. Consider manloading and equipment workload requirements and expansion capabilities. Identify equipment/ facilities required to comply with EPA rules and regulations. ARs 70-1, 700-127.

Mobile Facilities - Specify any requirements to purchase or modify mobile maintenance or storage to include ammo/special storage facilities. Assure that special security precautions or provisions are specified. Needs regarding commercial/organic utilities considerations must also be identified. AR 700-127.

Testing and Operational Facilities - Identify requirements for facilities to conduct design, materials and/or operational testing. When possible use common facilities to avoid duplication of expense. Use by Army of existing NASA, Air Force or Navy facilities to conduct materials testing by Cross Service agreement or contract is good business. AR 70-10, DODD 5000-3.

Facility Physical Security - Define any facility needs to assure item/equipment security to include health hazard or safety precautions necessary to facilitate operation of a healthy, safe and secure facility. AR 40-5, AR 40-10, AR 385-9, FR 385-10, AR 40-583, AR 385-16.

Facility Utilities - Identify needs for power, water, sewage and waste disposal. Identify source, whether on routine or emergency basis. Analyze needs and establish growth projections.

Special Facility Requirements - Determine if the storage, maintenance or operation of the item/equipment require special facilities. Some examples are isolated and/or sparsely populated areas for CBR weapons, missile storage/deployment in mountainous areas, ocean access areas for ship operations or deployment outloading.

Troop Facilities - Assure that adequate detail is given to housing and dining design requirements to accommodate both male/female, to maintain morale, and to meet health and environmental needs. Determine leadtimes and costs to assure availability of facilities, either through MCA funding, mobile or other temporary facilities (i.e. an aviation unit is scheduled for assignment to a previously designated artillery post. Airfields & quarters are required).

Training Ranges - Determine range requirements for artillery, missiles, strategic and tactical, air to ground, air to air and ground to air, tanks, small arms, etc. Include requirements for target systems, scoring equipment, fumes dispersal equipment, etc. Consider use of joint training facilities when economical. Assess power and other utility requirements.

FACILITIES CONSIDERATIONS

The following elements should be considered when completing this process:

a. Training facilities requirements.

b. Depot maintenance facilities requirements.

c. Fixed IM/TDA maintenance facilities.

d. Mobile maintenance facilities.

e Fixed and mobile storage facilities, including ammunition and special weapons storage.

f. Testing and operational facilities.

g. Facility physical security requirements.

h. Facility utilities (such as common or unique organic/commercial power).

i. Special facility requirements.

j. Facility design requirements, leadtime, description, costs, housing and dining facilities.

k. Training ranges, targets, scoring equipment, safety fans, etc.

STANDARDIZATION AND INTEROPERABILITY (S&I)

The following Sub-Attributes (ILS Sub-elements) are defined for this Attribute (ILS Element).

Standardization Plan - Determine if there are specific design parameters to be followed (i.e. Armored Family of Vehicles). Could the chassis provide a common frame and should common componentry be required to the maximum degree possible? Any standardization in this effort will reduce support costs for publications, technical data, drawings, etc. Design and development leadtimes for other items within the family can also be reduced. ARs 700-47, 700-60.

Interoperable Systems - Standardization of systems/sub-systems to assure interface and interoperability with other major systems is critical. Require that contractors/developers of items (i.e., radios) assure interoperability between aviation, infantry, Command & Control. Assure that Other service, NATO and Other Allies interface considerations are met. ARs 12-16, 34-1.

STANDARDIZATION AND INTEROPERABILITY (S&I)

The following elements and regulations should be considered when completing this process:

a. System family approach.

b. Interoperable systems.

c. Proven components and subsystems.

d. Other Service, NATO Allies interface (AR 12-16)

e. Standardized components, subsystems, frequencies, etc..

f. Use of metric measurements.

RELIABILITY AND AVAILABILITY (R&A)

The following Sub-Attributes (ILS Sub-elements) are defined for this Attribute (ILS Element).

Reliability - Provide qualitative and quantitative reliability requirements. If the item/equipment is a totally new/emerging technology, then specify the minimal acceptable/achievable reliability goals. Include a requirement for the contractor or developer to provide a reliability growth plan to achieve final reliability objectives. AR 702-3.

Maintainability - Specify quantitative and qualitative maintainability goals for each identifiable maintenance task of the system. The maintainers must be capable of performing the unit level inspection, minor repair and component replacement tasks (repeat for other established echelons of maintenance tasks, as well as unit if applicable). Specify the minimum numbers of personnel, skill levels and target time allotments for specified maintenance task performance (i.e., 1 unit level junior mechanic must be capable of changing spark plugs in 30 minutes; 2 intermediate level journeyman mechanics must be able to exchange (or changeout) transmission in 2 hours).

System Readiness Objectives - The Army standard SRO is 95%. If for any reason, (such as excessive cost to achieve objective), the objective cannot be attained, then a request for waiver must be obtained from DA. Life Cycle Cost Analysis and/or trade-off studies will be required to support waiver requests. AR 220-1, AR 95-33, AR 750-40 and DA PAM 738-750.

Testing - Develop a test plan to prove (by contractor or developer) that RAM requirements were met. For reparable items, it is not only necessary to prove through testing that the item (i.e., engine) runs 1,000 hours before requiring overhaul, but that in fact, it is repairable (not scrap) at the 1,000 hour interval. Test results, in written form confirmed by government witnesses to the tests are a firm requirement. Maintainability must also be proven, to include representation from the user target audience, that the item and or equipment is maintainable using TMDE specified in time frames designated by quantity and skill levels specified. Documentation of testing is required. AR 70-10, AR 71-3, AR 702-3.

RELIABILITY AND AVAILABILITY (R&A) CONSIDERATIONS

The following elements should be considered when completing this process:

a. Reliability growth plan.

b. System readiness objectives.

c. Test planning.

d. Durability.

e. Test results.

SUPPORT MANAGEMENT AND ANALYSIS

The following Sub-Attributes (ILS Sub-elements) are defined for this Attribute (ILS Element).

Planning - Planning, programming and budgeting for the resources needed to manage the myriad of activities associated with Acquisition Management (AR 70-1) must be accomplished during the initial phase of the project. Plans are necessary for the following program activities: LSA, ILS, T&E, Support Transition, Configuration Management, sample data collection and post fielding assessments. Also, funding for contractor or organic resources to carry out the plans and provide required documentation.

While some level of resource constraints will always be in effect, the Material Developer (PM) must know his total resource requirements to accomplish a trade-off analysis and develop strategies (i.e., the acquisition of extensive LSA data with End Item dollars is wasted if manpower dollars (OMA/End Item) will not be available to organically or contractually utilize/analyze the data). AR 70-1, AR 700-127, DA PAM 700-55, MIL-STD-1388-1A, MIL-STD-1388-2A.

Competition - By statute, most PMs must now consider competition in procurement for future support (follow-on) beginning in the design and development stages of the acquisition cycle. Determine the need for acquiring the proper level of LSAR, technical data and drawings to support the law. With due consideration given to this statute, it is considered highly desirable to obtain warranties to the maximum extent possible, not only for original items delivered but those subsequently purchased through the competition in procurement procedures. Budget for warranty manuals and revisions.

Testing and Evaluation - Participate in the Test Integration Working Group (TIWG) and furnish input to the Test and Evaluation Master Plan (TEMP). While testing and evaluations are required by numerous regulations and results normally provide status on a go/no-go or correction required basis, there may be a tendency to accept tunnel vision reports/recommendations.

Assure that resources are allocated for review (validation) of test data bases, comparisons made and recommendations rendered for relative merit to the item/equipment and its intended operational modes or environment. AR 70-10 and AR 71-3. Ensure resource identification for full ILS participation in TIWGs and at all tests and evaluations, as there is no part of the development cycle that does not impact logistics to some degree. Study all Test Incident Reports (TIRs) and participate in the scoring conferences.

Documentation - Assure dollars and Data Item Descriptions are in place for the documenting of all Concept Formulation development and/or prototypes/RAM/TEMP and management efforts. The documentation is needed to substantiate continuance of development or fielding phases of the item acquisition. Provide resources to accomplish Post Fielding Assessment. Documentation is also essential for proving reliability to allies for Foreign Military Sales.

In some projects, it may even be required for the PM to acquire computers and laser printers to produce adequate, timely copies of voluminous reports/documentation. Identify documentation required by supported and supporting organizations to the Mat. Dev. or TRADOC as part of the Material Acquisition, Support Management and Analysis process. Timely budgeting is essential.

SUPPORT MANAGEMENT AND ANALYSIS CONSIDERATIONS

The following elements should be considered when completing this process:

a. ILS plan.

b. Sample data collection.

c. Test data/evaluation.

d. Coordination of testing requirements and location.

e. LSA.

f. Requirements document.

g. Configuration management.

h. Solicitation document.

i. LSA documentation.

j. Test and evaluation plans/data integration

k. Logistic demonstration plan.

l. Support transition plan.

m. Post-fielding assessment.

n. ISP.

o. Warranty consideration or utilization.

p. Post production support planning.

q. Logistics evaluation.

r. ILS/MANPRINT integration.

s. Budget development.

COST ANALYSIS AND FUNDING

The following Sub-Attributes (ILS Sub-elements) are defined for this Attribute (ILS Element).

Cost and Operational Effectiveness Analysis - While the COEA is the technical responsibility of the Combat Developer, much of the actual cost data may be furnished by the Material Developer (PM). Resource funding to develop the COEA is required, as well as the TOD, TOA and BTA. Enough emphasis cannot be placed on the programming and budgeting phases of any project. Success or failure of completion of programs on time is frequently directly related to lack of funds for program execution due to poor budget input. AR 71-9, DA PAM 11-4.

Baseline Cost Estimating - Assure that all prior considerations herein and their related projected costs are included. PMs assure that BCEs are validated by the servicing Resource Management Office. This is a key document worthy of personal involvement by the Material Developer (PM). DA (SARDA) recognizes the BCE as a principle budget input document.

Material Fielding - Total package fielding is Army policy. Costs are allocated by category to user commands and Material Developers. Assure understanding and agreement by all parties to this task through Material Fielding Agreements to allow proper/timely budgeting and execution to occur. AR 700-142.

COST ANALYSIS AND FUNDING CONSIDERATIONS

The following elements and regulations should be considered when completing this process:

a. O&S cost (DA PAM 11-4)

b. Initial provisioning costs.

c. Acquisition TMDE/calibration.

d. Tools and support equipment costs.

e. Publications preparation.

f. Printing costs.

g. First and second destination transportation costs.

h. Special support services (warranty).

i. Depot and contract maintenance cost.

j. Technical assistance (contract/military/ civilian)

k. Test training, training equipment/ materials/devices.

l. Logistic support analysis (contractor)

m. Secondary/stock fund parts support cost.

n. Expendable supplies support cost.

o. Maintenance expenditure limits.

p. Facility costs.

q. Test program set development and acquisition costs.

r. PDSS costs.

s. Resources.

t. ILS cost elements.

u. ILS management resources.

v. Adequacy, availability, and timeliness.

w. COEA.

x. Baseline cost estimate.

y. Total package fielding.

z. Work breakdown structure.

aa. Budget preparation.